PIONEER®
The Art of Entertainment

Service Manual

DEH-59DH

ORDER NO.
CRT1968

HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-59DH UC
DEH-45DH UC

COMPACT disc DIGITAL AUDIO

- **See the separate manual CX-597(CRT1829) for the CD mechanism description, disassembly and circuit description.**
- **The CD mechanism employed in this model is one of CX-597 series.**

● CD Player Service Precautions

1. For pickup unit(CXX1230) handling, please refer to"Disassembly"(CX-597 Service Manual CRT1829). During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.

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1. SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING

● **DEH-59DH**

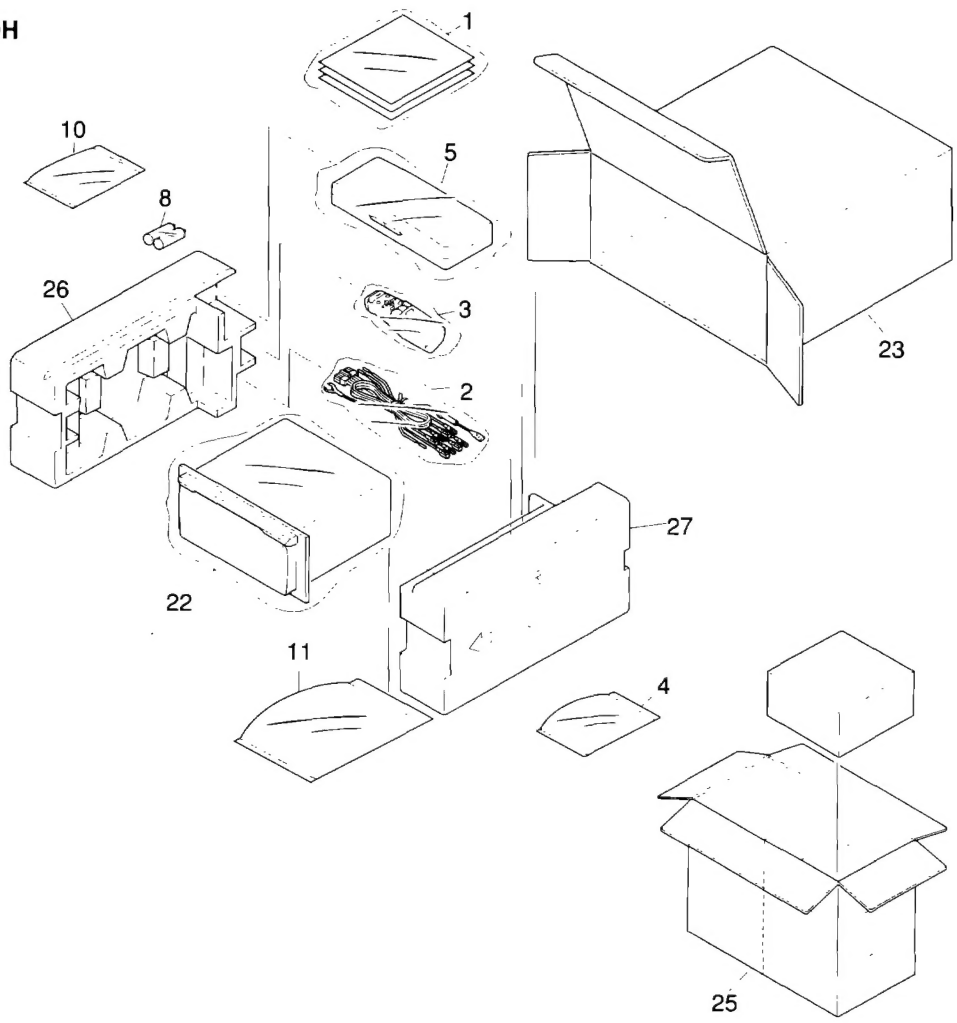


Fig. 1

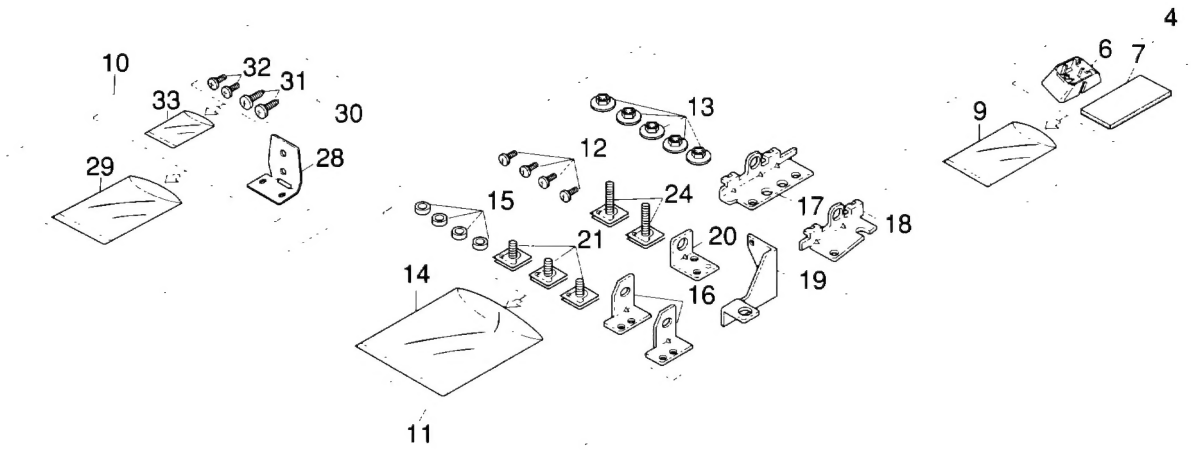


Fig. 2

NOTE:

- Parts marked by "＊"are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ▼ mark on the product are used for disassembly.

● Parts List

Mark	No.	Description	Part No.
	1-1	Owner's Manual (English,French)	CRD2252
	1-2	Installation Manual (English,French)	CRD2363
	1-3	Polyethylene Bag	CEG1116
*	1-4	Warranty Card	CRY1070
	2	Cord	CDE4670
	3	Remote Control Assy	CXB1160
	4	Base Assy	CEA2344
	5	Case Assy	CXB1141
*	6	Base	CZN6466
*	7	Sheet	CZN3371
	8	Battery	CEX1006
*	9	Polyethylene Bag	CZE3188
*	10	Bracket Assy	CEA2346
	11	Accessory Assy	CEA2006
	12	Screw(x4)	BSZ30P050FMC
	13	Nut(x5)	CBN1012
*	14	Polyethylene Bag	CEG1101
	15	Spacer(x4)	CLA2598
	16	Bracket(x2)	CNC6767
	17	Bracket	CNC5506
	18	Bracket	CNC5507
	19	Bracket	CNC5686
	20	Bracket	CNC5687

Mark	No.	Description	Part No.
	21	Bolt Unit(x3)	CXA7960
	22	Cover	CEG1228
	23	Carton	CHG3206
	24	Bolt Unit(x2)	CXA7961
	25	Contain Box	CHL3206
	26	Protector(L)	CHP1910
	27	Protector(R)	CHP1911
	28	Bracket	CZN6467
*	29	Polyethylene Bag	CZE3201
	30	Screw Assy	CZE3198
	31	Screw(x2)	BNC40P120FZK
	32	Screw(x2)	BPZ30P100FZK
*	33	Polyethylene Bag	CEG-127

● DEH-45DH

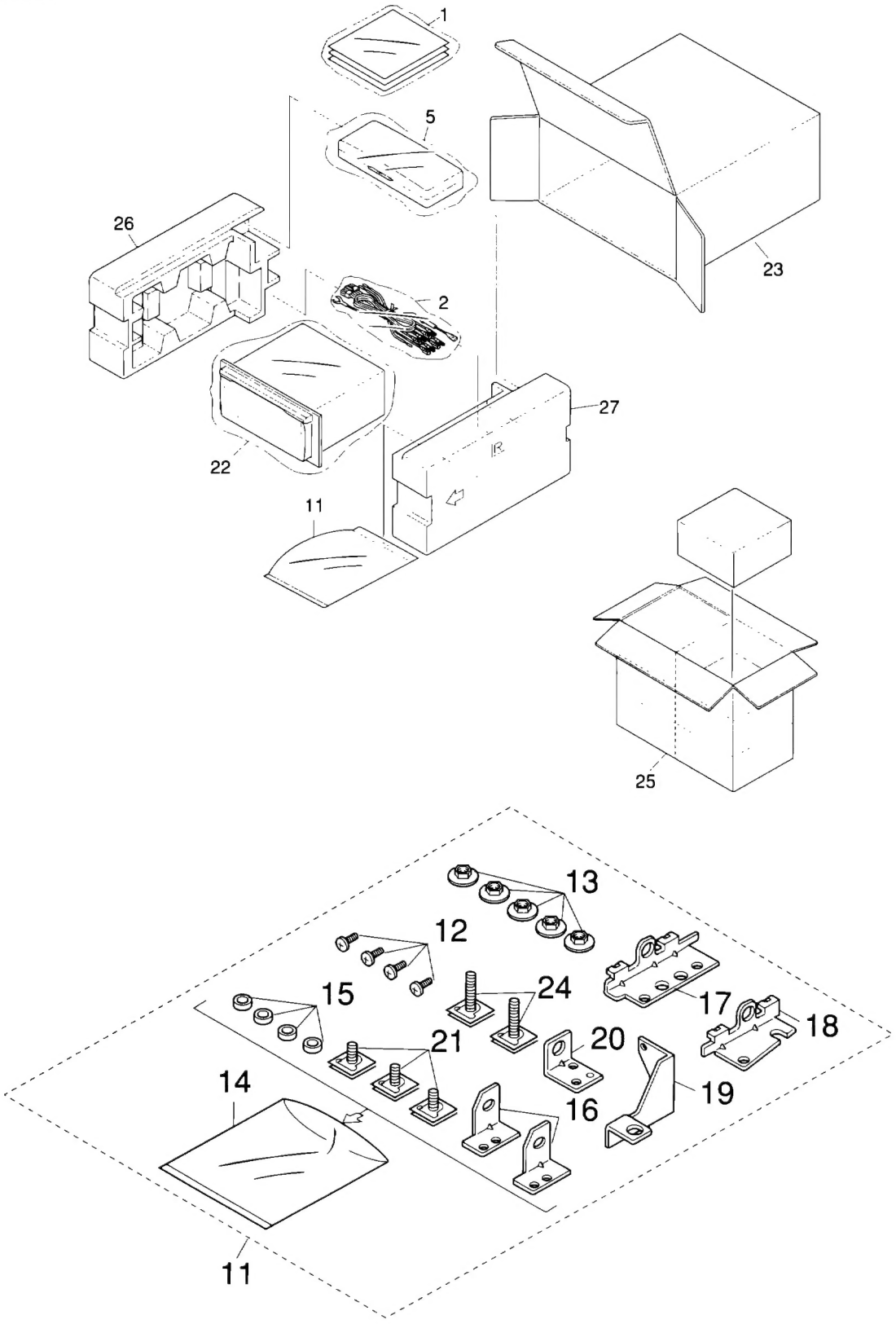


Fig. 3

● Parts List

Mark	No.	Description	Part No.
*	1-1	Card	ARY1048
	1-2	Owner's Manual (English,French)	CRD2250
	1-3	Installation Manual (English,French)	CRD2251
	1-4	Polyethylene Bag	CEG1116
	2	Cord	CDE4670
	3,4	·····	
	5	Case Assy	CXB1415
	6-10	·····	
	11	Accessory Assy	CEA2006
	12	Screw(x4)	BSZ30P050FMC
	13	Nut(x5)	CBN1012
*	14	Polyethylene Bag	CEG1101
	15	Spacer(x4)	CLA2598
	16	Bracket(x2)	CNC6767
	17	Bracket	CNC5506
	18	Bracket	CNC5507
	19	Bracket	CNC5686
	20	Bracket	CNC5687
	21	Bolt Unit(x3)	CXA7960
	22	Cover	CEG1228
	23	Carton	CHG3205
	24	Bolt Unit(x2)	CXA7961
	25	Contain Box	CHL3205
	26	Protector(L)	CHP1910
	27	Protector(R)	CHP1911

2.2 EXTERIOR

● DEH-59DH

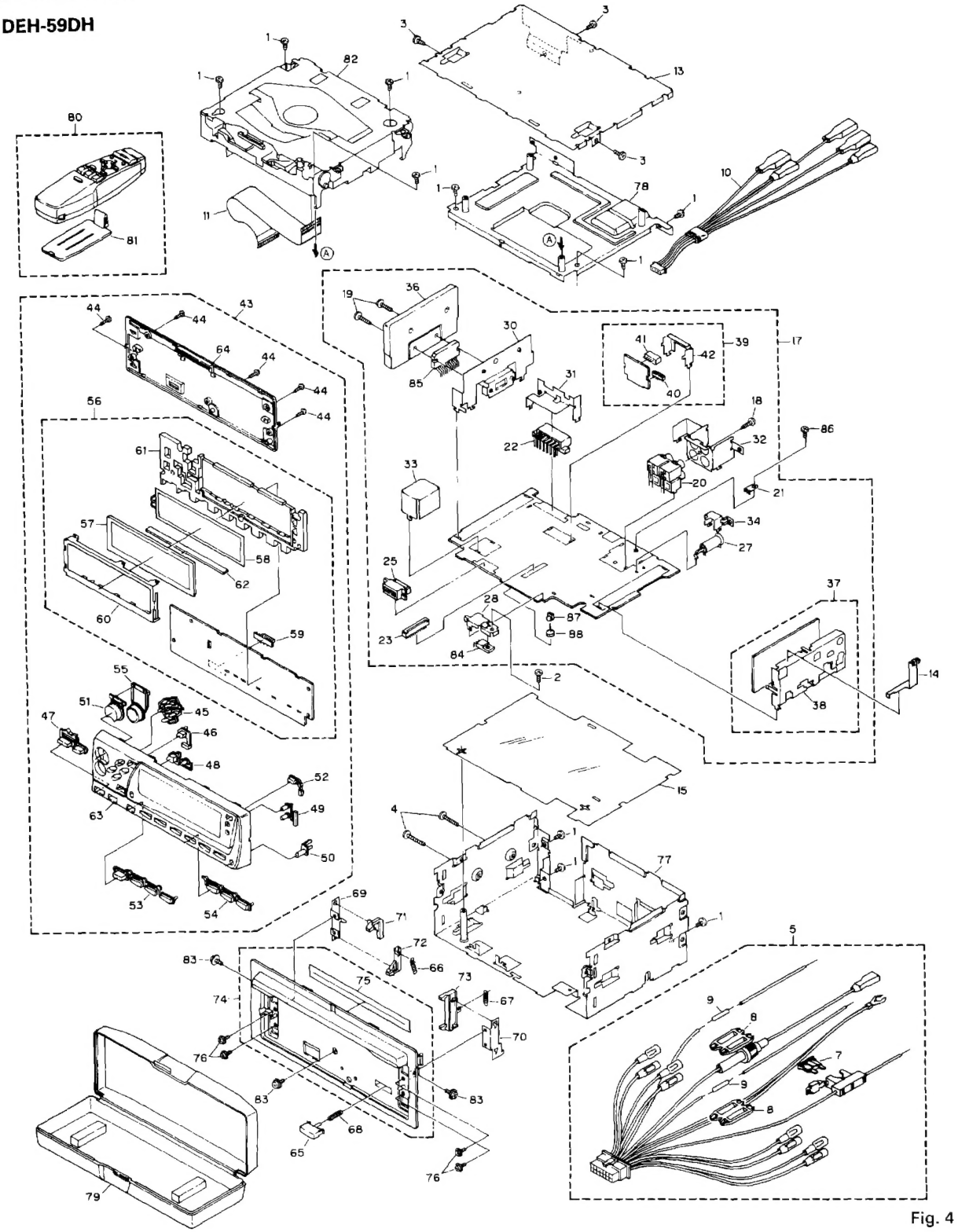


Fig. 4

● Parts List

Mark No.	Description	Part No.
1	Screw	BSZ26P060FMC
2	Screw	BSZ26P080FMC
3	Screw	BSZ30P050FMC
4	Screw	BSZ30P200FMC
5	Cord	CDE4670
6	·····	
7	Fuse(10A)	CEK1136
8	Cap	CNS1472
9	Resistor	RS1/2PMF102J
10	Cord Assy	CDE5198
11	Cable	CDE5269
12	·····	
13	Case	CNB2123
14	Holder	CNC7005
15	Insulator	CNM5076
16	·····	
17	Tuner Amp Unit	CWX2067
18	Screw	BPZ26P100FMC
19	Screw	BSZ26P160FMC
20	Pin Jack(CN251)	CKB1031
21	Terminal(CN504)	CKF1059
22	Plug(CN901)	CKM1204
23	Connector(CN651)	CKS2255
24	·····	
25	Connector(CN801)	CKS3581
26	·····	
27	Antenna Jack(CN503)	CKX1056
28	Holder	CNC5013
29	·····	
30	Holder	CNC6879
31	Holder	CNC6892
32	Holder	CNC7197
33	Holder	CNC6889
34	Holder	CNC7001
35	·····	
36	Heat Sink	CNR1435
37	FM/AM Tuner Unit	CWE1417
38	Holder	CNC6555
39	Detach Alarm Unit	CWM5291
40	Plug(CN852)	CKS1617
41	Connector(CN851)	CKS3585
42	Holder	CNC6912
43	Detach Grille Assy	CXA9605
44	Screw	BPZ20P100FZK
45	Button	CAC4886

Mark No.	Description	Part No.
46	Button(FUNC)	CAC4887
47	Button(SOURCE)	CAC4888
48	Button(AUDIO)	CAC4889
49	Button(LOUD,CLOCK)	CAC4893
50	Button(DETACH)	CAC4894
51	Button(+)	CAC4885
52	Button(EJECT)	CAC4892
53	Button(1,2,3,DISP)	CAC4890
54	Button(4,5,6)	CAC4891
55	Button(-)	CAC4895
56	Key Board Unit	CWX2091
57	LCD	CAW1390
58	EL	CEL1488
59	Connector(CN1901)	CKS3580
60	Holder	CNC7198
61	Holder	CNV4772
62	Connector	CNV4791
63	Grille Unit	CXA9693
64	Cover Unit	CXA9713
65	Button	CAC5180
66	Spring	CBH1834
67	Spring	CBH1835
68	Spring	CBH1933
69	Bracket	CNC6135
70	Bracket	CNC6791
71	Arm	CNV4692
72	Arm	CNV4693
73	Arm	CNV4951
74	Panel Unit	CXA9695
75	Cover	CNM4875
76	Screw	IMS20P040FZK
77	Chassis Unit	CXA9714
78	Chassis Unit	CXA9718
79	Case Assy	CXB1415
80	Remote Control Assy	CXB1160
81	Battery Cover	CNS4406
82	CD Mechanism Module(S7)	CXK5001
83	Screw	ISS26P060FZK
84	Transistor(Q971)	2SD2396
85	IC(IC201)	TDA7384A
86	Screw	ISS26P060FMC
87	LED(D851)	BR4361F
88	Bush	CNV-724

● DEH-45DH

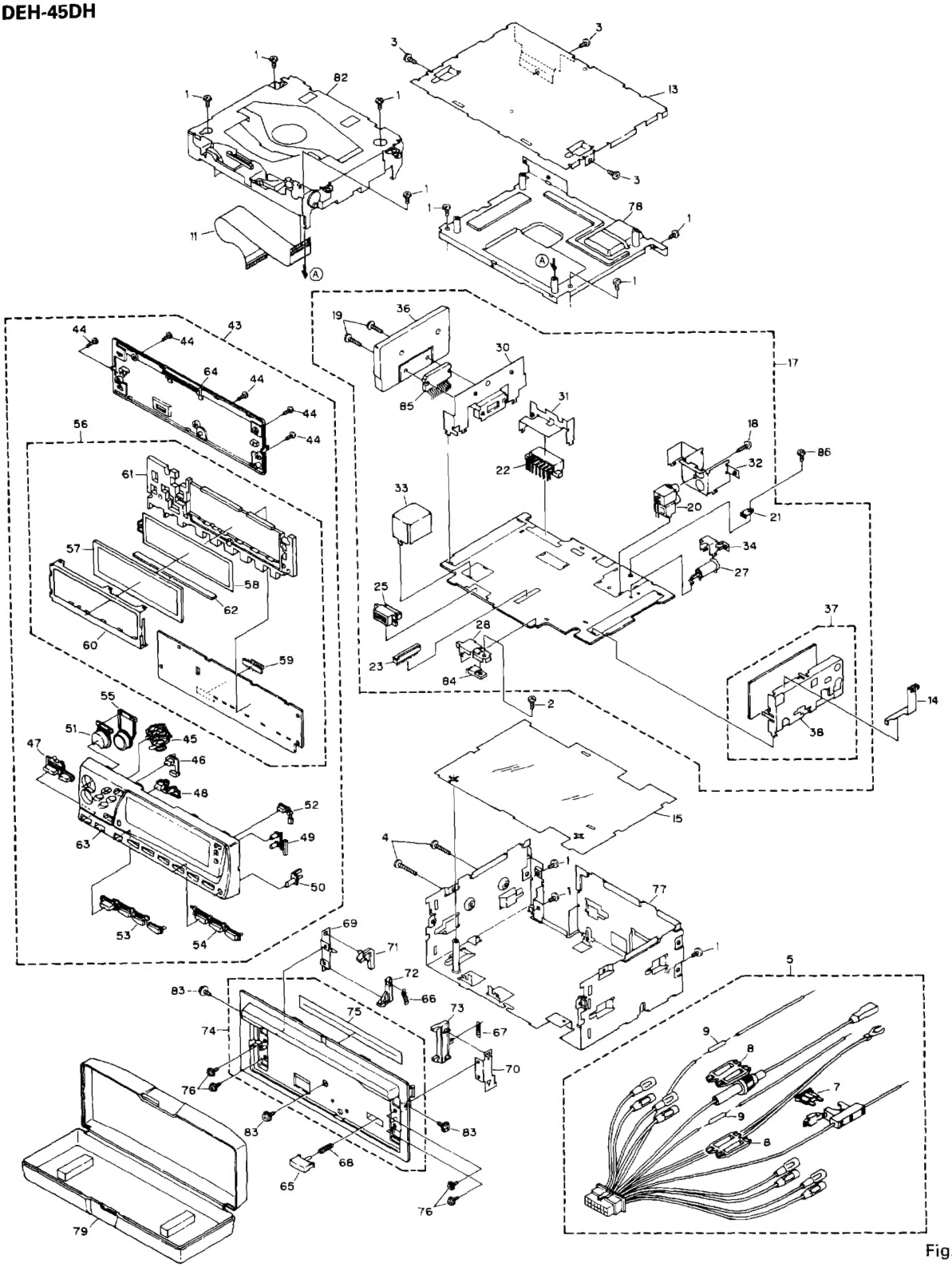


Fig. 5

● Parts List

Mark No.	Description	Part No.
1	Screw	BSZ26P060FMC
2	Screw	BSZ26P080FMC
3	Screw	BSZ30P050FMC
4	Screw	BSZ30P200FMC
5	Cord	CDE4670
6	·····	
7	Fuse(10A)	CEK1136
8	Cap	CNS1472
9	Resistor	RS1/2PMF102J
10	·····	
11	Cable	CDE5269
12	·····	
13	Case	CNB2123
14	Holder	CNC7005
15	Insulator	CNM5076
16	·····	
17	Tuner Amp Unit	CWX2068
18	Screw	BPZ26P100FMC
19	Screw	BSZ26P160FMC
20	Pin Jack(CN251)	CKB1032
21	Terminal(CN504)	CKF1059
22	Plug(CN901)	CKM1204
23	Connector(CN651)	CKS2255
24	·····	
25	Connector(CN801)	CKS3581
26	·····	
27	Antenna Jack(CN503)	CKX1056
28	Holder	CNC5013
29	·····	
30	Holder	CNC6879
31	Holder	CNC6893
32	Holder	CNC7199
33	Holder	CNC6889
34	Holder	CNC7001
35	·····	
36	Heat Sink	CNR1435
37	FM/AM Tuner Unit	CWE1417
38	Holder	CNC6555
39-42	·····	CWM5291
43	Detach Grille Assy	CXA9606
44	Screw	BPZ20P100FZK
45	Button	CAC4886
46	Button(FUNC)	CAC4887
47	Button(SOURCE)	CAC4888
48	Button(AUDIO)	CAC4889
49	Button(LOUD,CLOCK)	CAC4893
50	Button(DETACH)	CAC4894
51	Button(+)	CAC4885
52	Button(EJECT)	CAC4892
53	Button(1,2,3,DISP)	CAC4890
54	Button(4,5,6)	CAC4891
55	Button(-)	CAC4895
56	Key Board Unit	CWX2091
57	LCD	CAW1390
58	EL	CEL1488
59	Connector(CN1901)	CKS3580
60	Holder	CNC7198
61	Holder	CNV4772
62	Connector	CNV4791
63	Grille Unit	CXA9694
64	Cover Unit	CXA9713
65	Button	CAC5180
66	Spring	CBH1834
67	Spring	CBH1835
68	Spring	CBH1933
69	Bracket	CNC6135
70	Bracket	CNC6791
71	Arm	CNV4692
72	Arm	CNV4693
73	Arm	CNV4951
74	Panel Unit	CXA9695
75	Cover	CNM4875
76	Screw	IMS20P040FZK
77	Chassis Unit	CXA9715
78	Chassis Unit	CXA9718
79	Case Assy	CXB1415
80,81	·····	
82	CD Mechanism Module(S7)	CXK5001
83	Screw	ISS26P060FZK
84	Transistor(Q971)	2SD2396
85	IC(IC201)	TDA7384A
86	Screw	ISS26P060FMC

2.3 CD MECHANISM MODULE

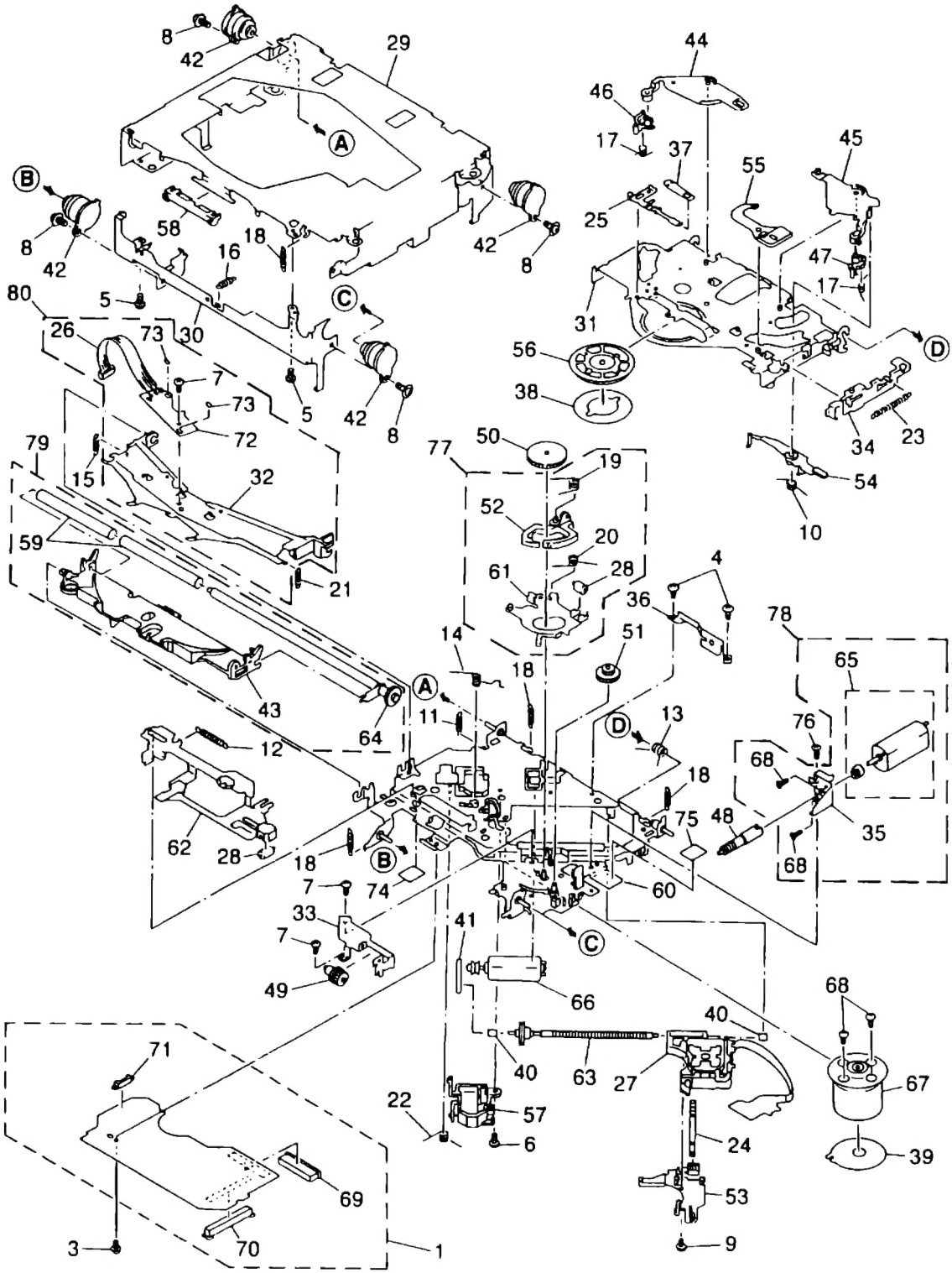


Fig. 6

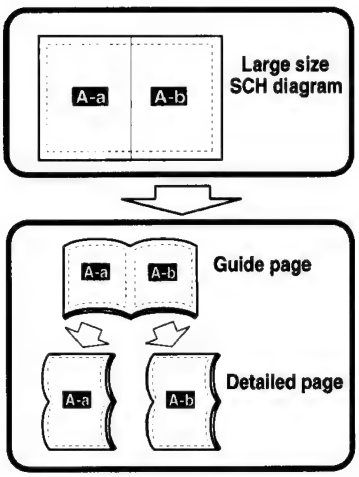
● Parts List

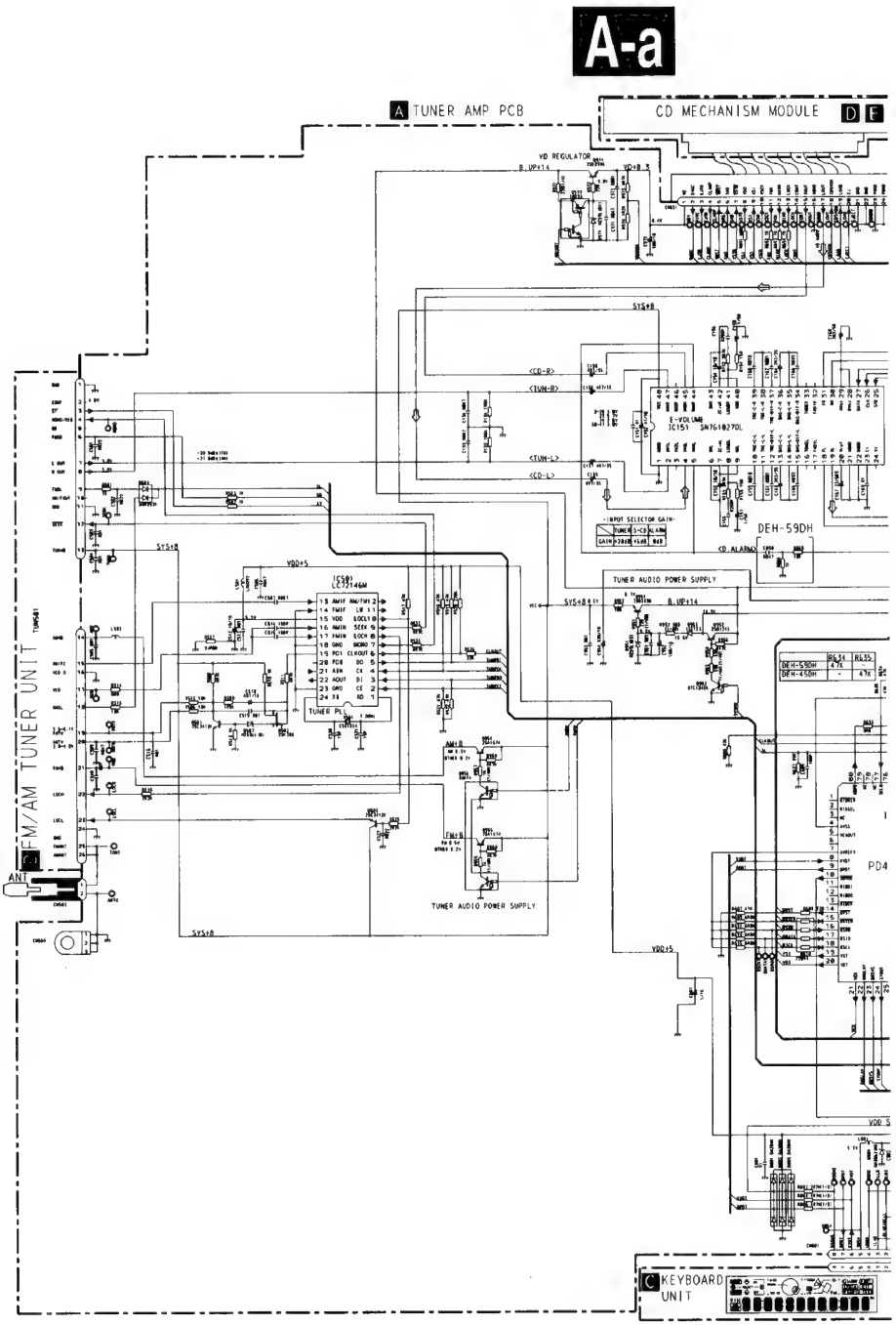
Mark	No.	Description	Part No.
	1	Control Unit	CWX1889
	2	•••••	
	3	Screw	IMS26P035FMC
	4	Screw	BMZ20P040FMC
	5	Screw	BSZ20P040FMC
	6	Screw(M2×3)	CBA1077
	7	Screw(M2×2)	CBA1250
	8	Screw(M2×5)	CBA1296
	9	Screw(M2×3.85)	CBA1362
	10	Spring	CBH1945
	11	Spring	CBH1724
	12	Spring	CBH1939
	13	Spring	CBH1729
	14	Spring	CBH1730
	15	Spring	CBH1731
	16	Spring	CBH1732
	17	Spring	CBH1736
	18	Spring	CBH1745
	19	Spring	CBH1832
	20	Spring	CBH1833
	21	Spring	CBH1848
	22	Spring	CBH1849
	23	Spring	CBH1863
	24	Spring	CBL1214
	25	Spring	CBL1269
	26	Connector(CN1)	CDE4576
	27	Pickup Unit(Service)	CXX1230
	28	Roller	CLA2627
	29	Frame	CNC5796
	30	Frame	CNC5797
	31	Arm	CNC5799
	32	Arm	CNC5801
	33	Bracket	CNC5871
	34	Lever	CNC6054
	35	Bracket	CNC6056
*	36	Bracket	CNC6376
	37	Spacer	CNM3315
	38	Sheet	CNM4849
	39	PCB	CNP4230
	40	Bearing	CNR1415
	41	Belt	CNT1071
	42	Damper	CNV3974
	43	Arm	CNV4120
	44	Arm	CNV4122
	45	Arm	CNV4123
	46	Arm	CNV4124
	47	Arm	CNV4125
	48	Gear	CNV4128
	49	Gear	CNV4129
	50	Gear	CNV4130
	51	Gear	CNV4131
	52	Arm	CNV4136
	53	Holder	CNV4663
	54	Arm	CNV4138
	55	Arm	CNV4139
	56	Clamper	CNV4140
	57	Holder	CNV4664
	58	Guide	CNV4484
	59	Roller	CNV4509
	60	Chassis Unit	CXA9515
	61	Arm Unit	CXA8565
	62	Lever Unit	CXA9300
	63	Screw Unit	CXA8699
	64	Gear Unit	CXA8701
	65	Load Motor Unit(M3)	CXA8702
	66	CRG Motor Unit(M2)	CXA8986
	67	Motor Unit(M1)	CXA8912
	68	Screw	JFZ20P025FMC
	69	Connector(CN101)	CKS1953
	70	Connector(CN701)	CKS2774
	71	Connector(CN801)	CKS2196
*	72	Gathering PCB	CNX2445
	73	Photo-transistor(Q1, 2)	CPT-230S-X
	74	Sheet	CNM4873
	75	Cushion	CNM3917
	76	Screw	BMZ20P025FMC
	77	ELBO Arm Assy	CXA8889
	78	Load Motor Assy	CXA8891
	79	LO Arm Assy	CXA8892
	80	Guide Arm Assy	CXA8893

3. SCHEMATIC DIAGRAM

3.1 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".





A-b

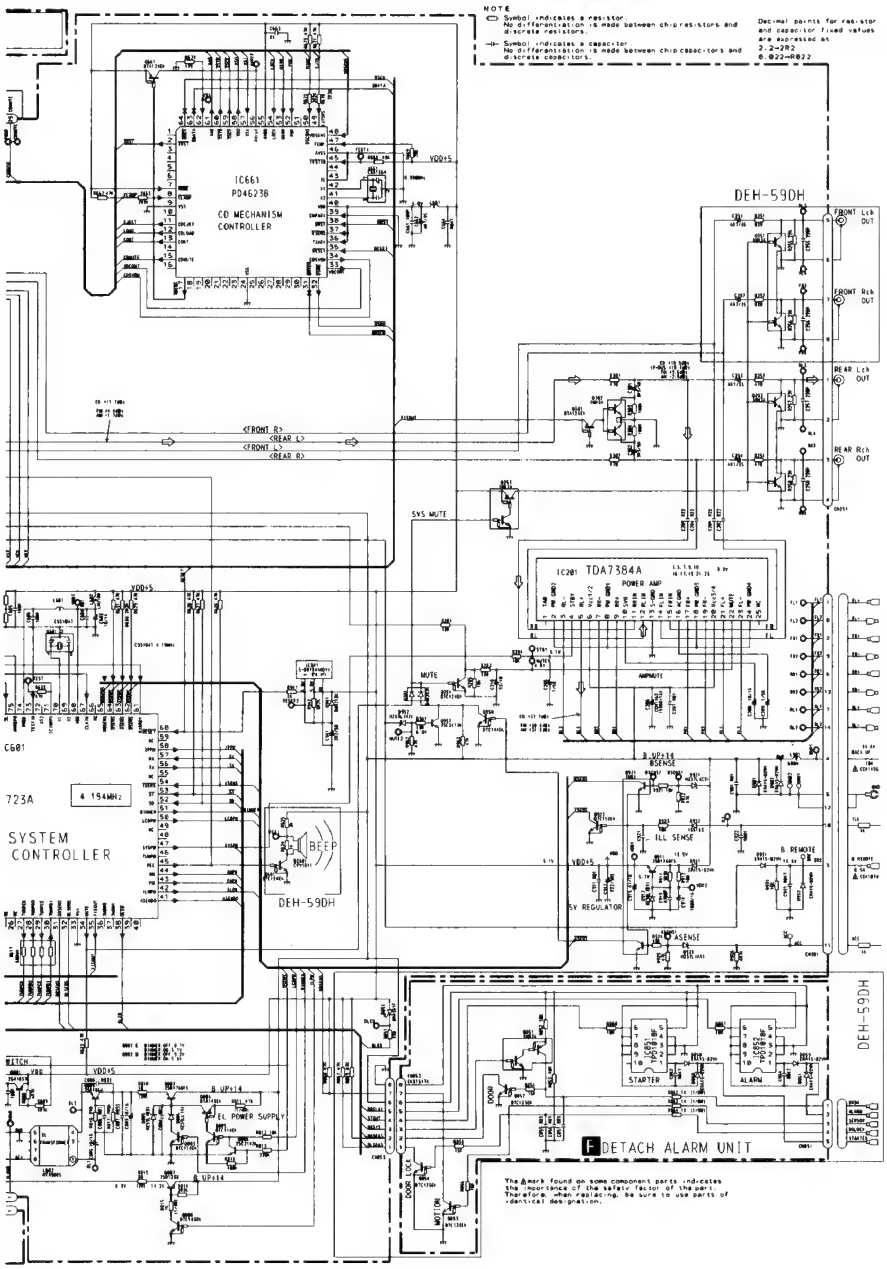
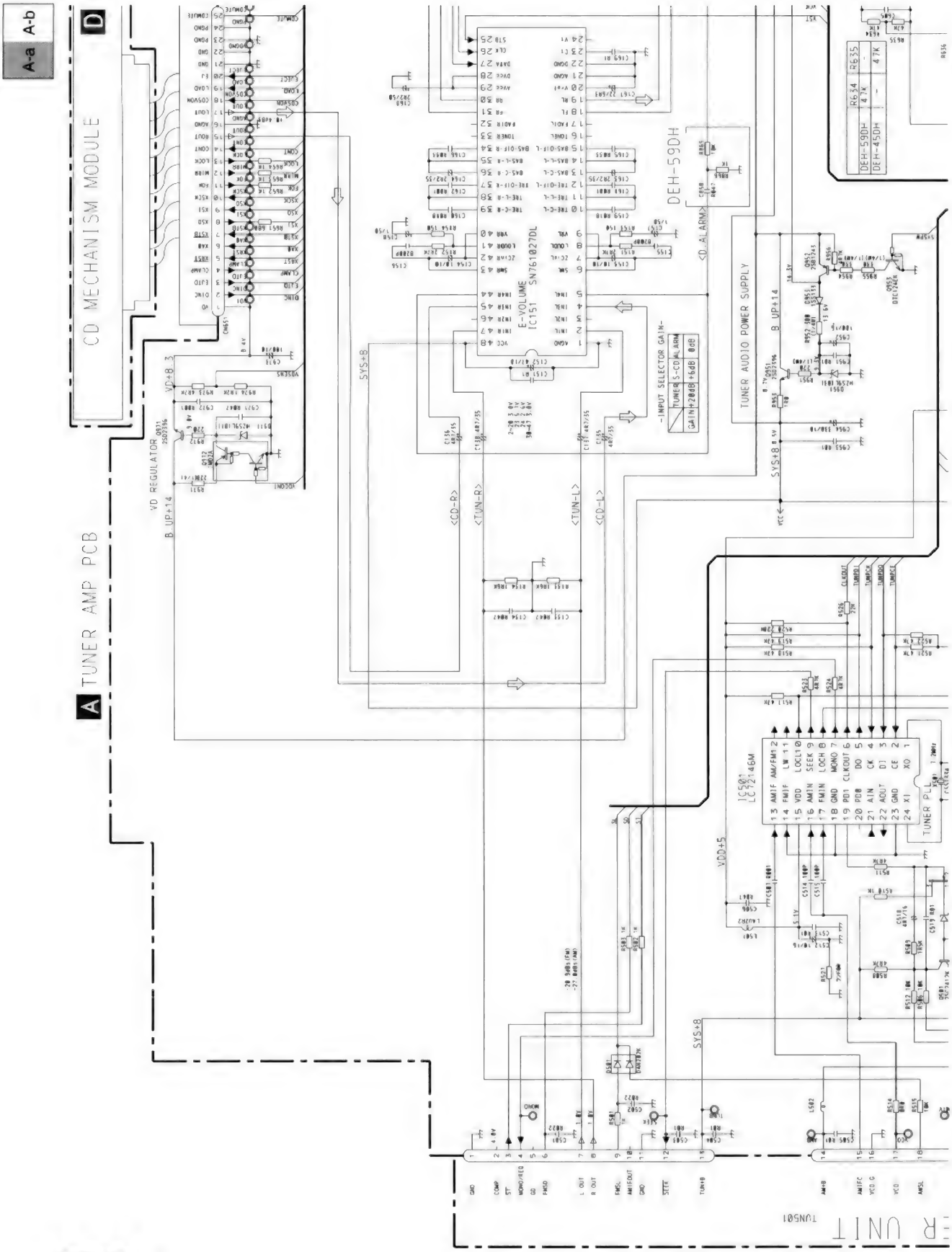

NOTE
IC661
PD4623B
CD MECHANISM
CONTROLLER
DEH-59DH
FRONT Lch OUT
FRONT Rch OUT
REAR Lch OUT
REAR Rch OUT
<FRONT R>
<REAR L>
<FRONT L>
<REAR R>
SYS MUTE
IC201 TDA7384A
POWER AMP
MUTE
AMPMUTE
B UP+16 SENSE
ILL SENSE
B REMOTE
5V REGULATOR
ASENSE
C601
723A
4.194MHz
SYSTEM
CONTROLLER
BEEP
DEH-59DH
VDD+5
B UP+16
EL POWER SUPPLY
STARTER
ALARM
DOOR LOCK
MOTION
DETACH ALARM UNIT
DEH-59DH

Fig. 7


A-b
A-a
D
CD MECHANISM MODULE
A TUNER AMP PCB
VD REGULATOR
B_UP+14
VD+8.3
SYS+8
E-VOLUME
IC151
SN761027DL
DEH-59DH
TUNER AUDIO POWER SUPPLY
B_UP+14
<CD-R>
<TUN-R>
<TUN-L>
<CD-L>
TUNER PLL
IC501
LC72146M
VDD+5
SYS+8
TUNER UNIT
TUN501
R635
R654
DEH-59DH
DEH-45DH

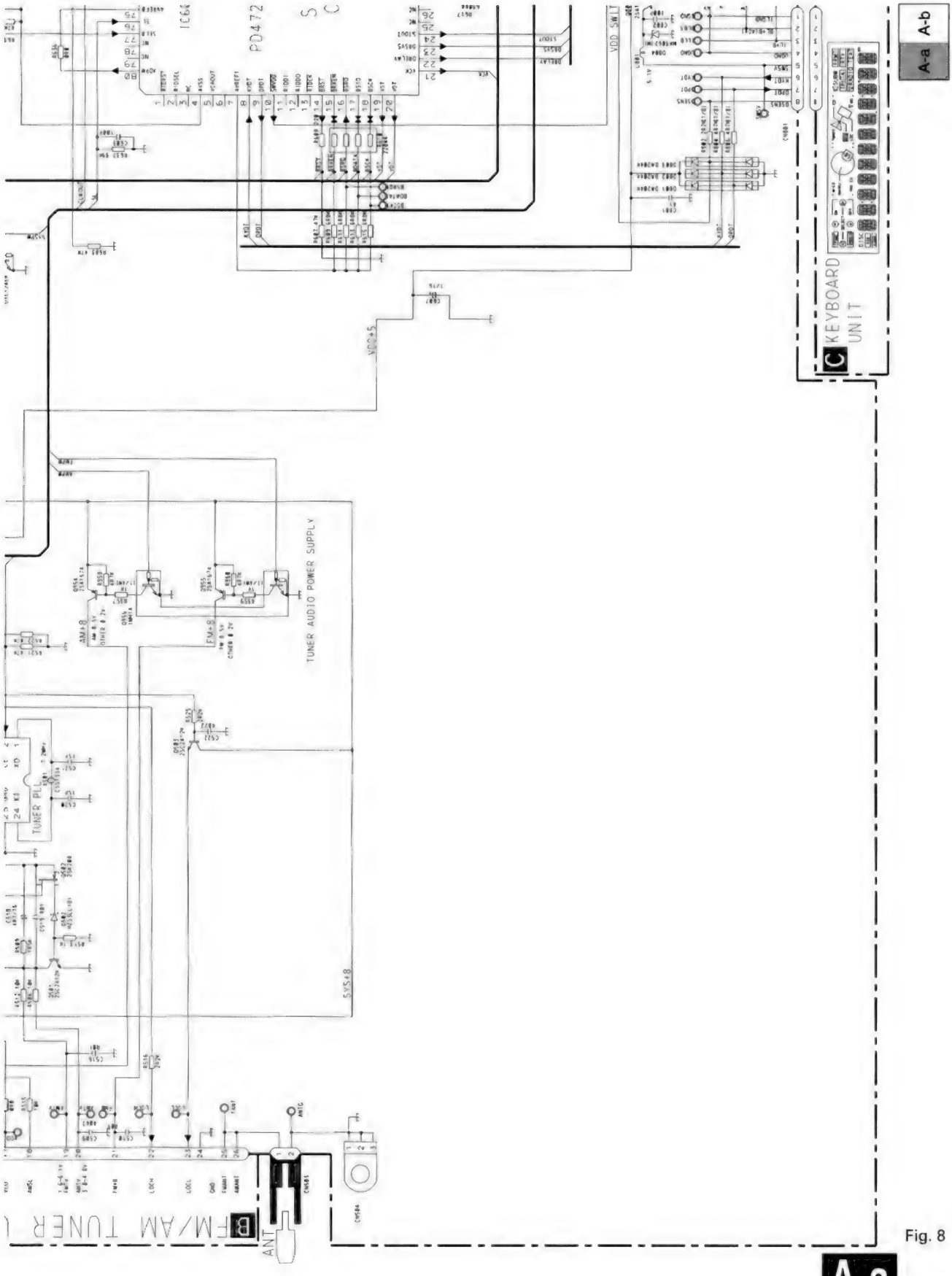
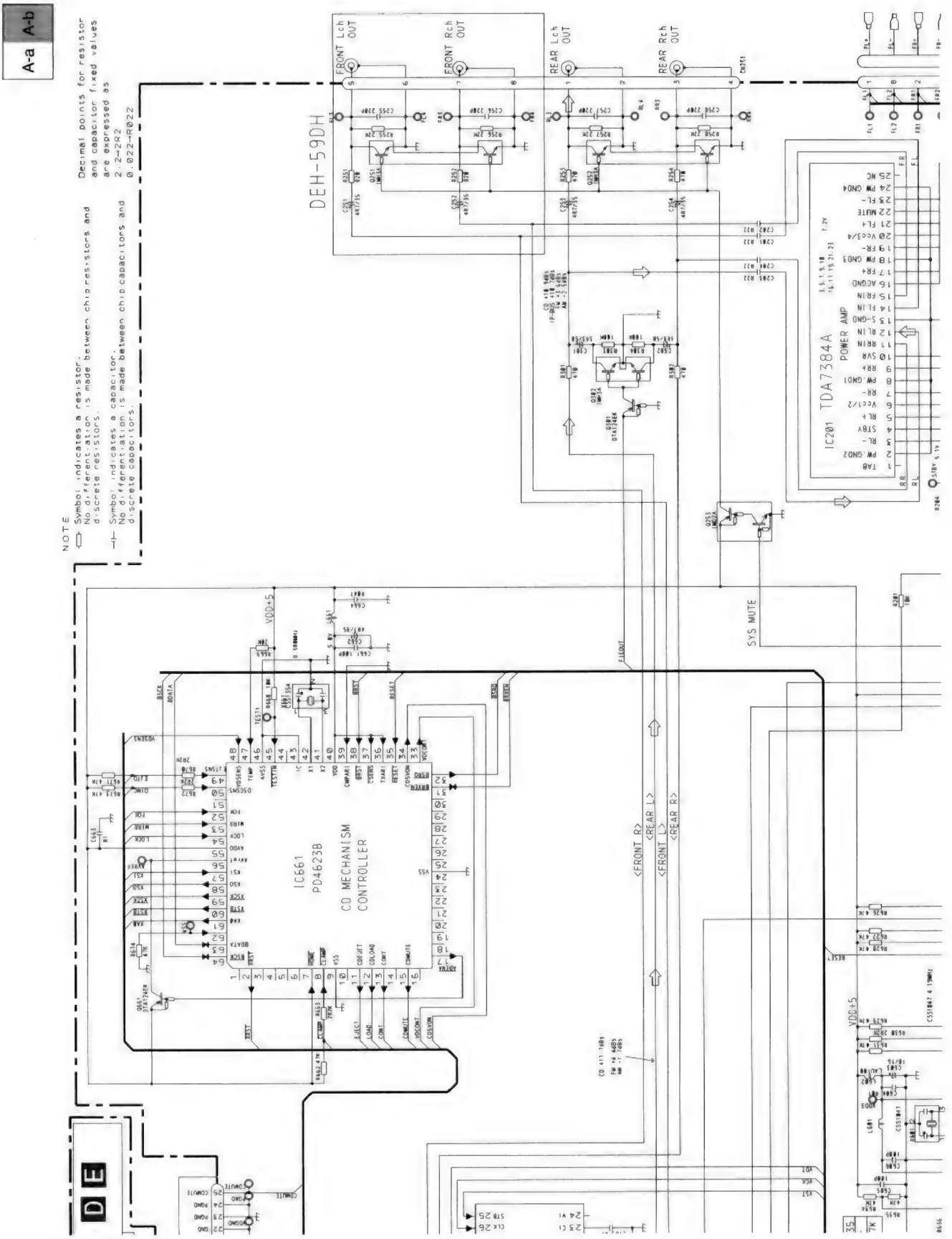

A-a
A-b
KEYBOARD UNIT
TUNER AUDIO POWER SUPPLY
TUNER PLL
FM/AM TUNER
ANT

Fig. 8


A-a
A-b
NOTE
Symbol indicates a resistor.
No. differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No. differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as
2.2=2R2
0.022=R022
DEH-59DH
FRONT Lch OUT
FRONT Rch OUT
REAR Lch OUT
REAR Rch OUT
IC201 TDA7384A
POWER AMP
IC661
PD4623B
CD MECHANISM CONTROLLER
SYS MUTE
<FRONT R>
<REAR L>
<FRONT L>
<REAR R>
VDD+5
D E
A-b

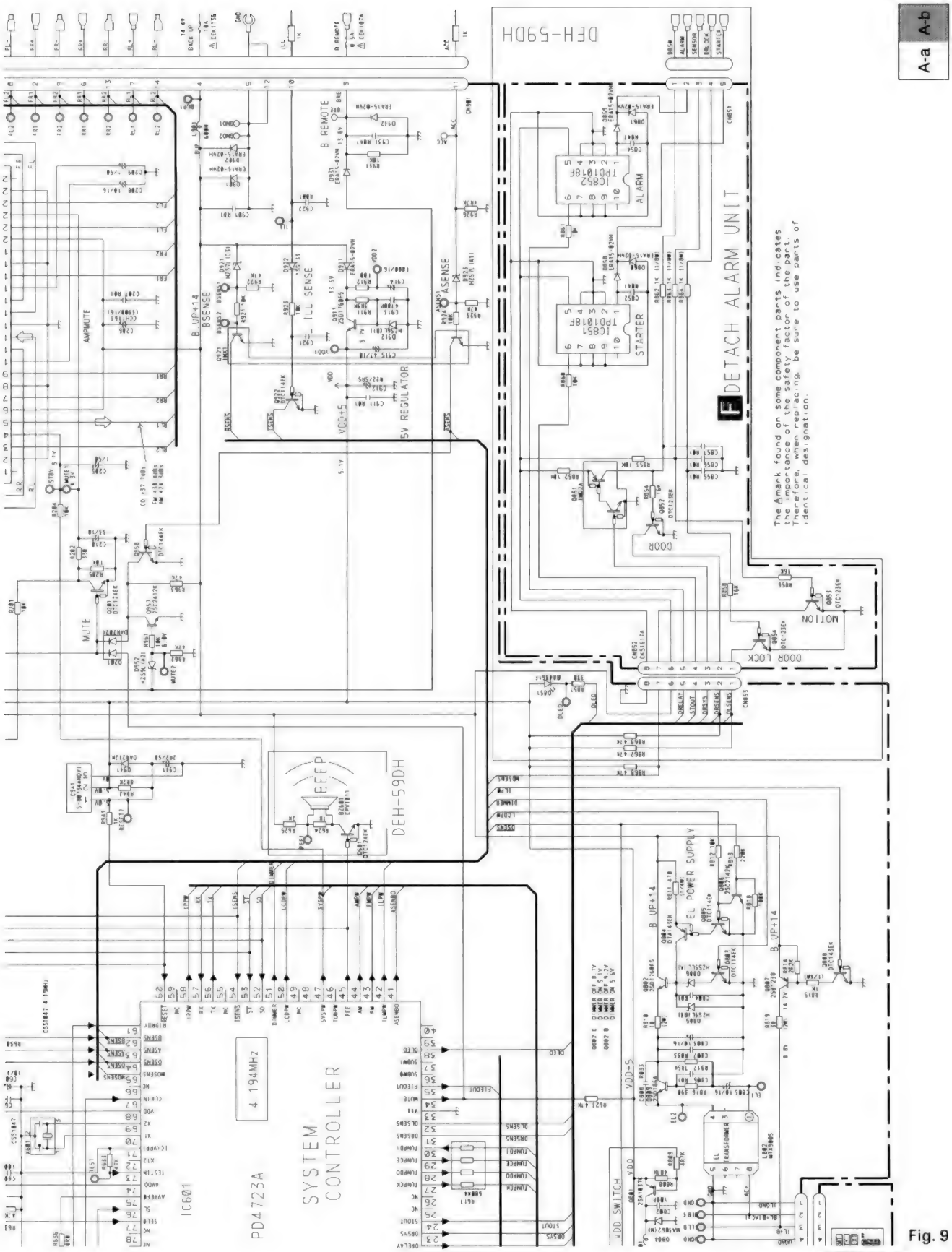
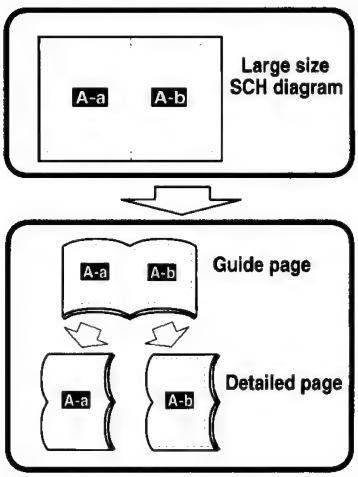
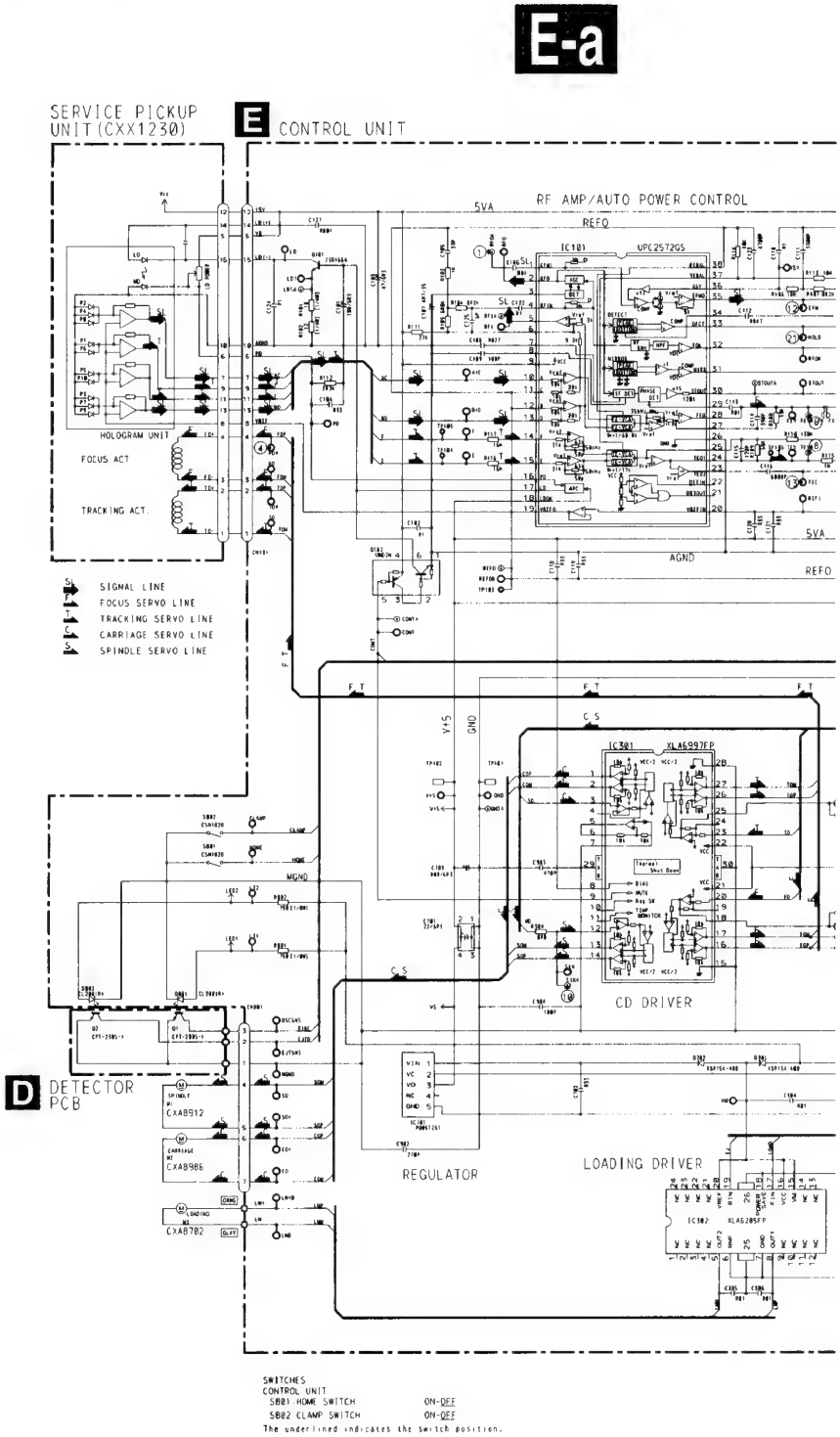

A-a
A-b
DEH-59DH
DETACH ALARM UNIT
The Δmark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
ALARM
STARTER
DOOR
MOTION
DOOR LOCK
B REMOTE
ILL SENSE
ASENSE
BSENSE
5V REGULATOR
AMP/MUTE
MUTE
BEEP
DEH-59DH
EL POWER SUPPLY
VDD SWITCH
SYSTEM CONTROLLER
PD4723A
IC601
4.194MHz

Fig. 9

3.2 CD MECHANISM MODULE(GUIDE PAGE)





E-b

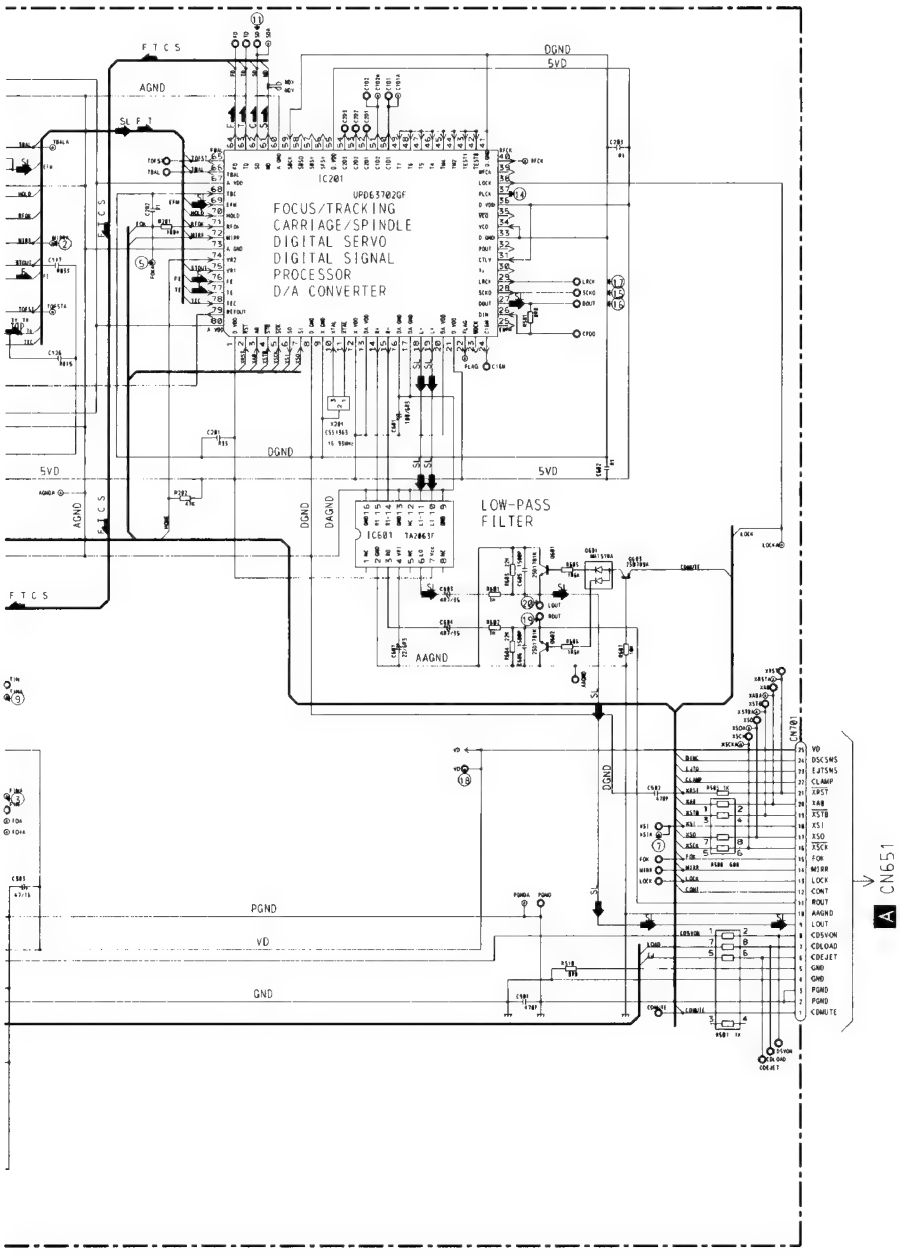
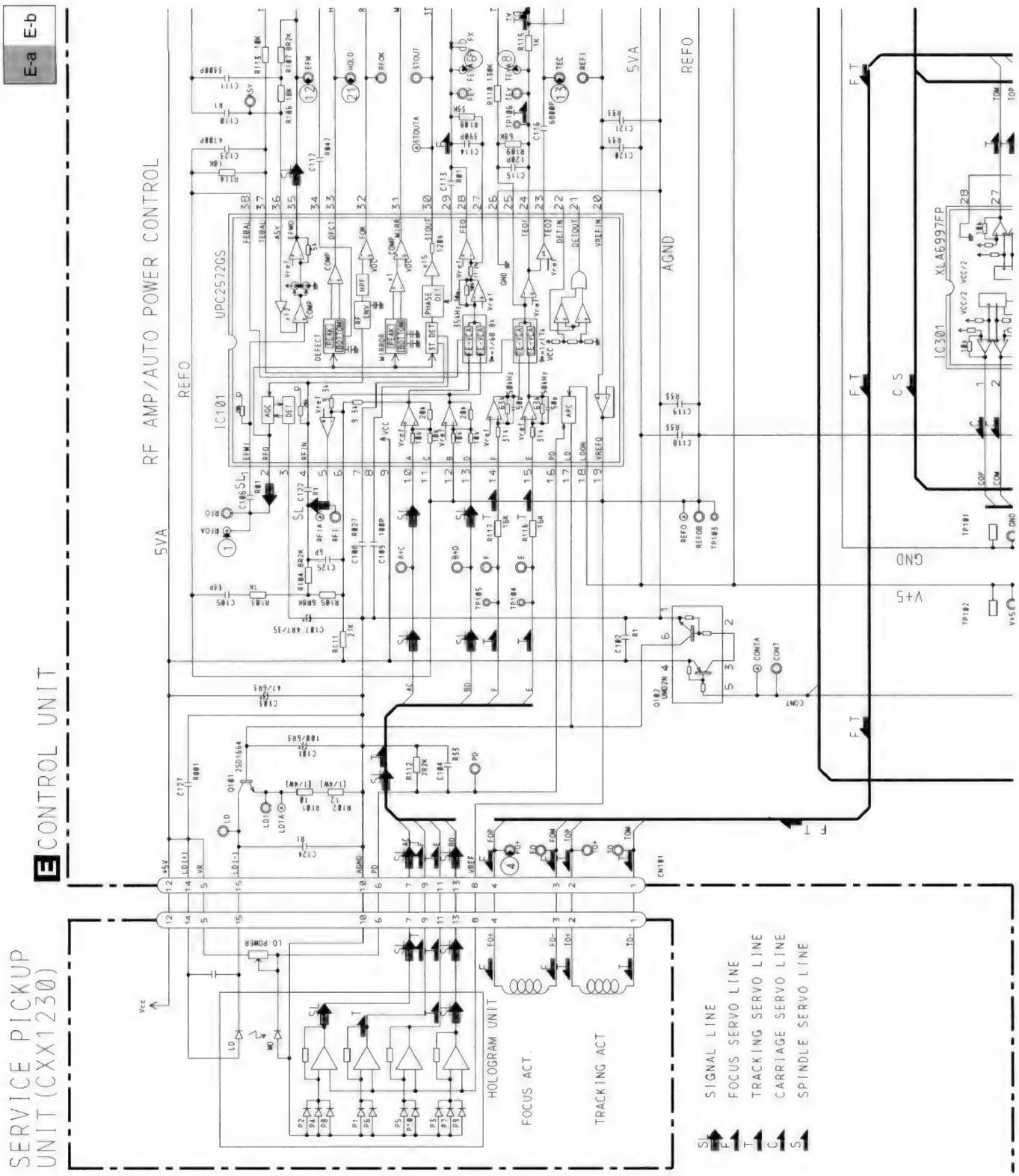

IC201
UPD63702GF
FOCUS/TRACKING
CARRIAGE/SPINDLE
DIGITAL SERVO
DIGITAL SIGNAL
PROCESSOR
D/A CONVERTER
LOW-PASS
FILTER
IC601 TA2863F
AGND
DGND
5VD
AAGND
PGND
VD
GND
CN651

Fig. 10


E-a E-b
E CONTROL UNIT
RF AMP/AUTO POWER CONTROL
SERVICE PICKUP UNIT (CXX1230)
HOLOGRAM UNIT
FOCUS ACT.
TRACKING ACT
IC101
UPC2572GS
IC301
XLA6997FP
5VA
AGND
REFO
GND
V+5
SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE

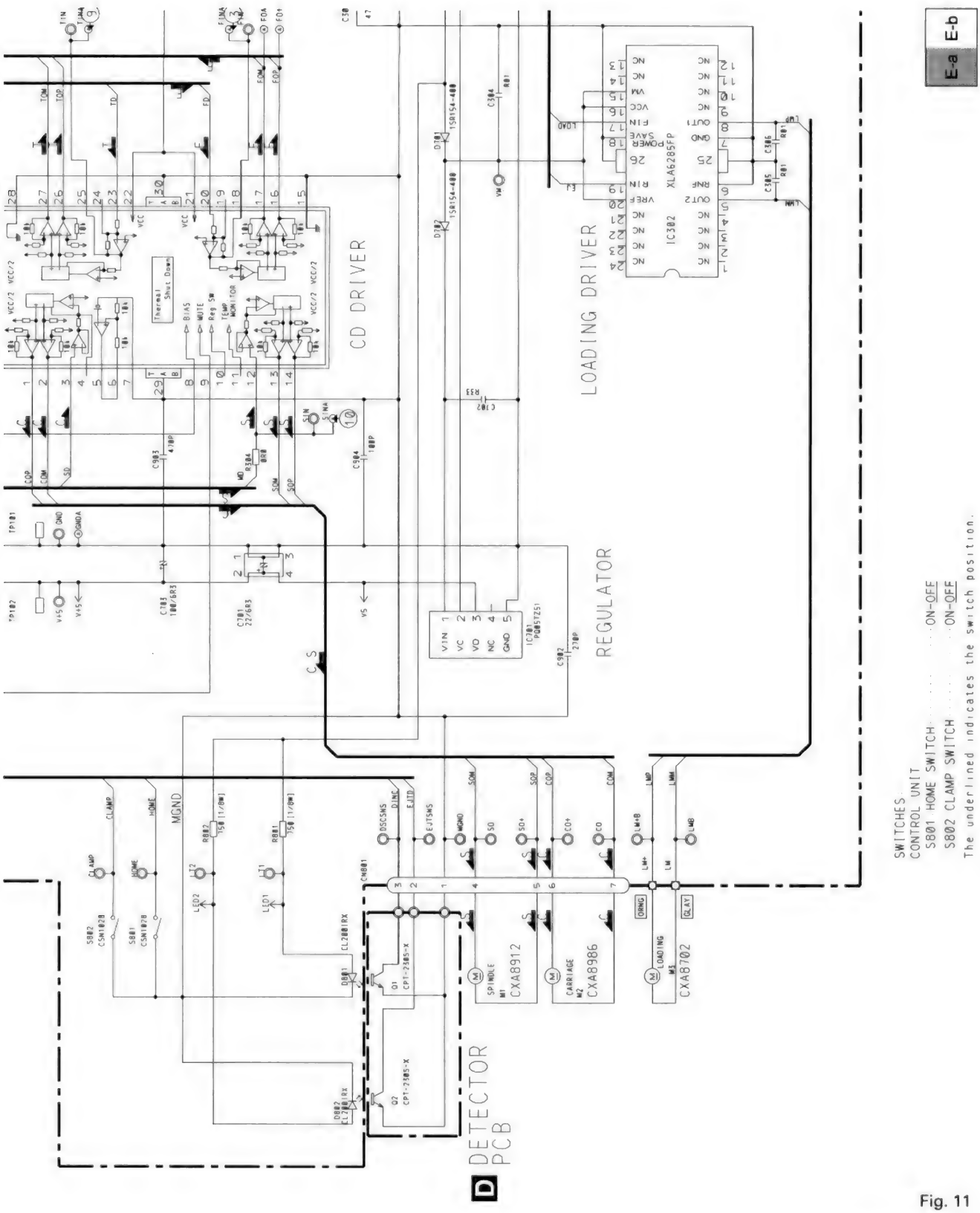
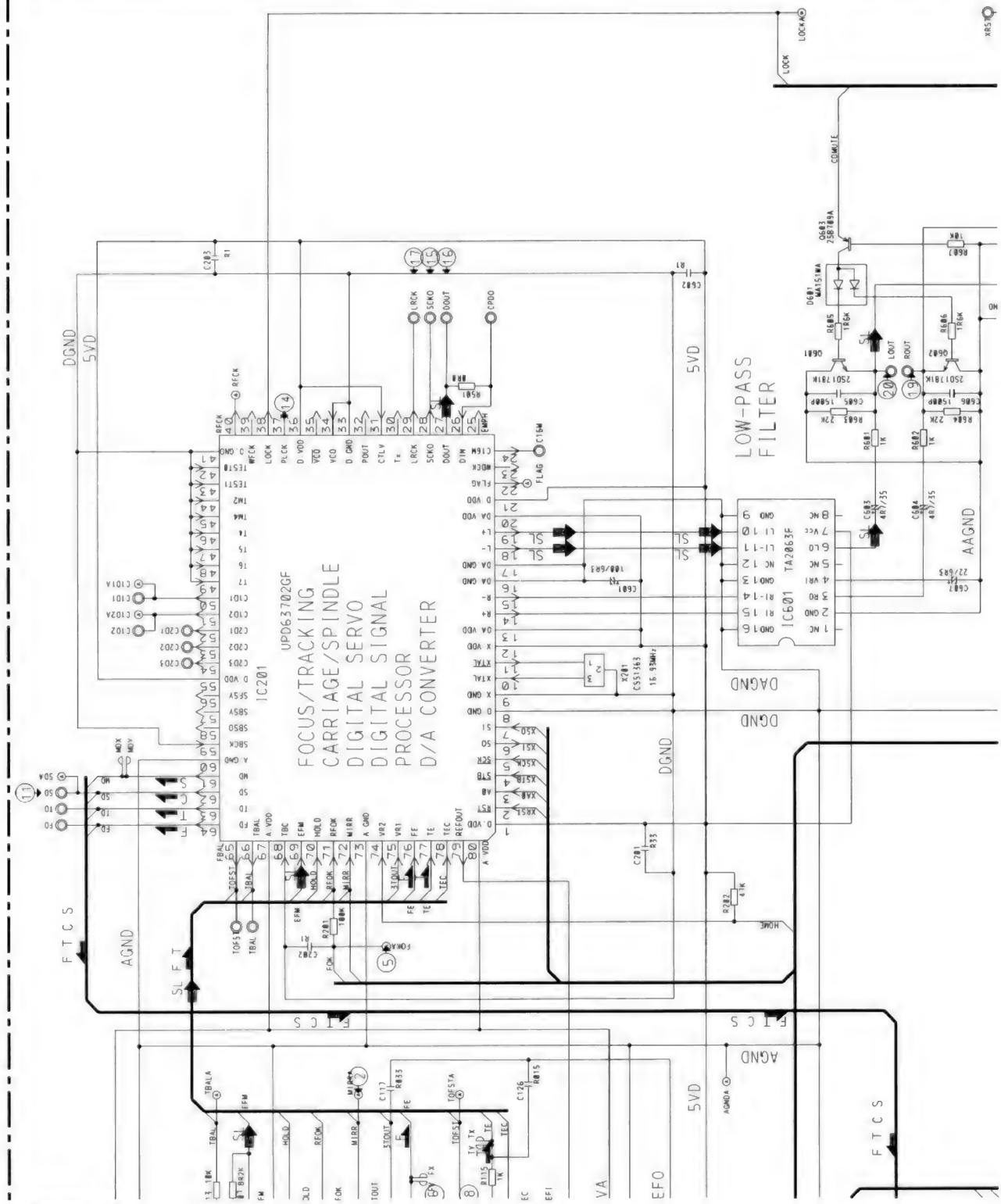

CD DRIVER
LOADING DRIVER
REGULATOR
DETECTOR PCB
SPINDLE M1 CXA8912
CARRIAGE M2 CXA8986
LOADING M3 CXA8702
SWITCHES
CONTROL UNIT
S801 HOME SWITCH ON-OFF
S802 CLAMP SWITCH ON-OFF
The underlined indicates the switch position.

Fig. 11

E-a E-b


FOCUS/TRACKING
CARRIAGE/SPINDLE
DIGITAL SERVO
DIGITAL SIGNAL
PROCESSOR
D/A CONVERTER
UPD63702GF
IC201
LOW-PASS
FILTER
IC601
TA2063F
DGND
5VD
AGND
DAGND
AAGND
FTCS
SLFT
LOCK
COMUTE
LOUT
ROUT
HOME
FM
DLD
FOK
TOUT
VA
EFO
EC
EFI

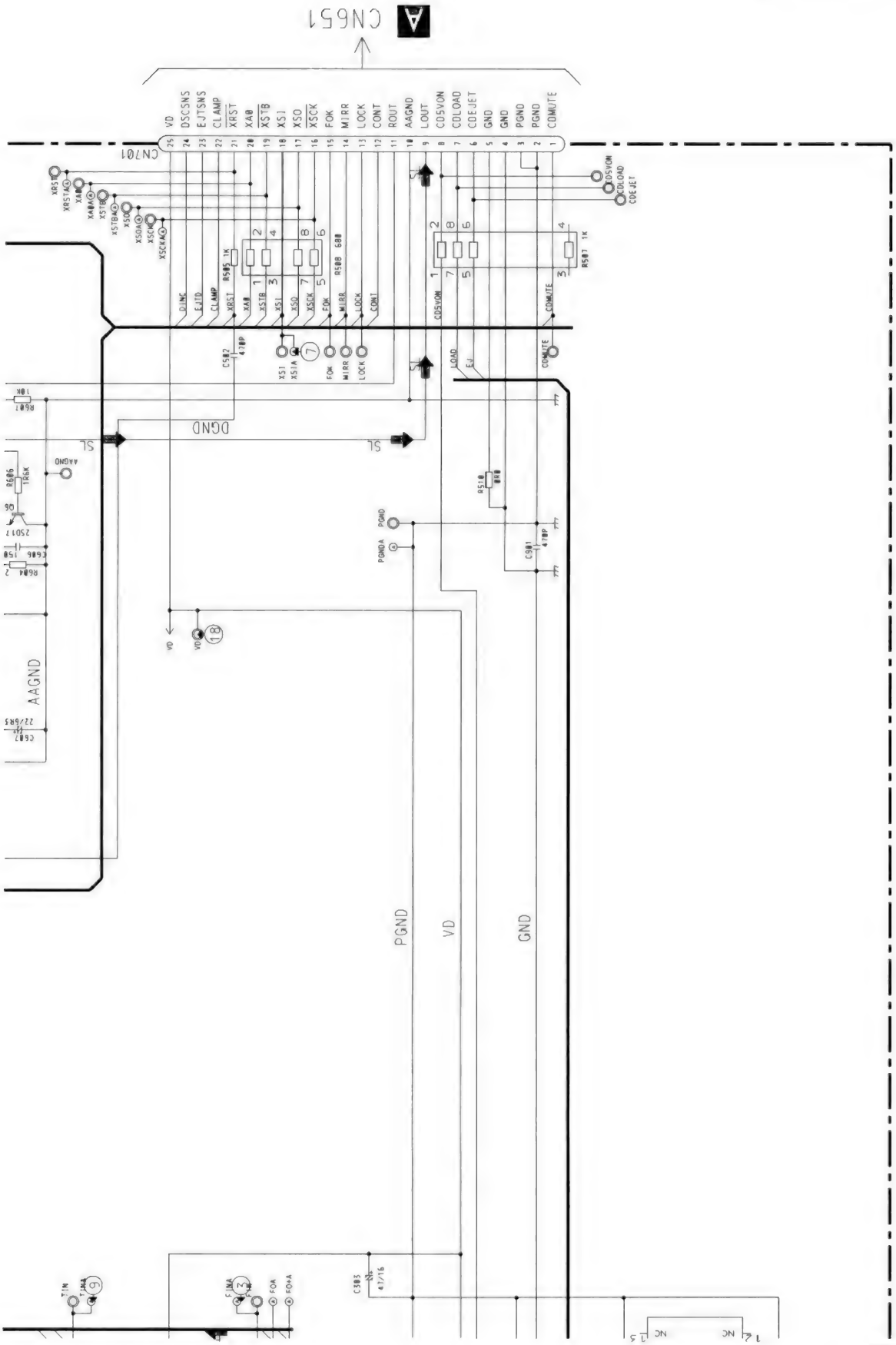
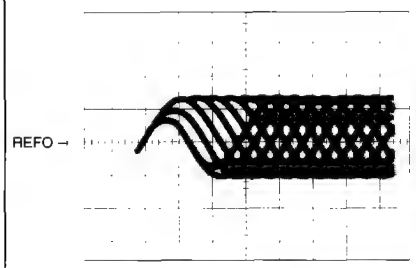

A
CN651
CN701
VD
DSCSNS
EJTSNS
CLAMP
XRST
XA0
XSTB
XSI
XSO
XSCK
FOK
MIRR
LOCK
CONT
ROUT
AAGND
LOUT
CDSVON
CDLOAD
CDEJET
GND
PGND
COMUTE
DGND
SL
AAGND
PGND
VD
GND
AAGND

Fig. 12

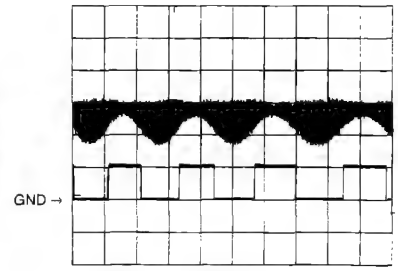
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

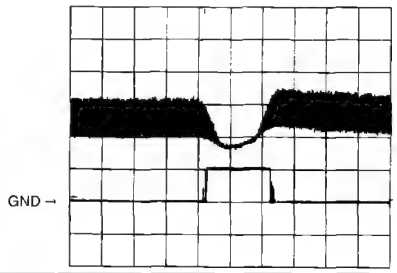
① RFO 0.5V/div. 0.5μs/div.
Normal mode: play



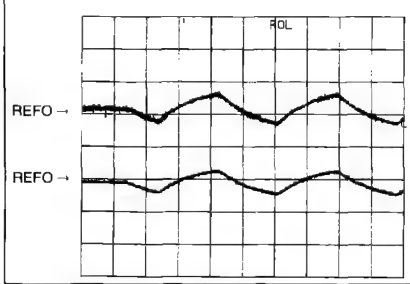
① CH1: RFO 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Test mode: Tracking open



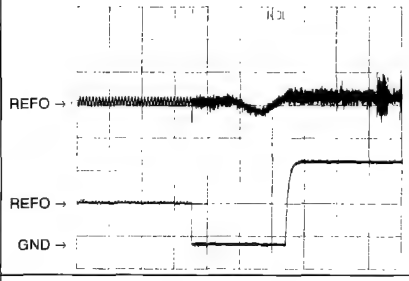
① CH1: RFO 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Nomal mode: The defect part passes 800μm



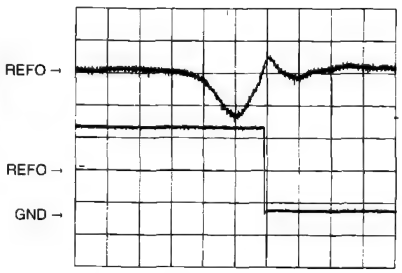
③ CH1: FIN 0.5V/div. 0.2s/div.
④ CH2: FO+ 2V/div.
Test mode: No disc, Focus close



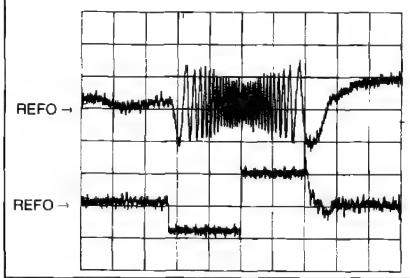
③ CH1: FIN 0.5V/div. 0.2s/div.
⑤ CH2: FOK 2V/div.
Normal mode: Focus close



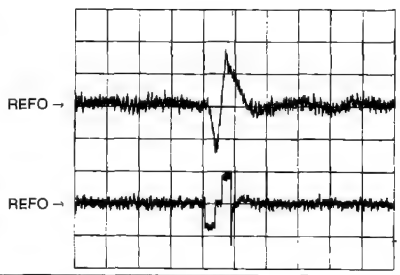
⑥ CH1: FEY 0.5V/div. 1ms/div.
⑦ CH2: XSI 2V/div.
Normal mode: Focus close



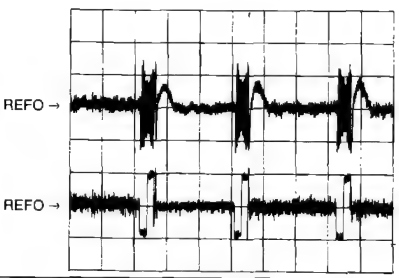
⑧ CH1: TEY 0.5V/div. 0.5ms/div.
⑨ CH2: TIN 0.5V/div.
Test mode: 32 tracks jump (FWD)



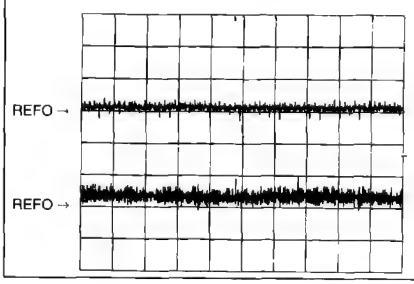
⑧ CH1: TEY 0.5V/div. 0.5ms/div.
⑨ CH2: TIN 0.5V/div.
Test mode: Single jump (FWD)



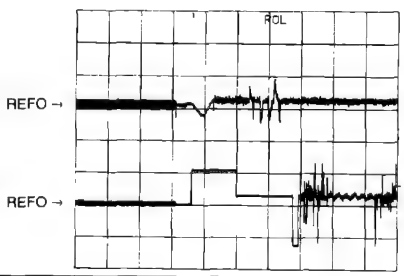
⑧ CH1: TEY 0.5V/div. 5ms/div.
⑨ CH2: TIN 0.5V/div.
Test mode: 100 tracks jump (FWD)



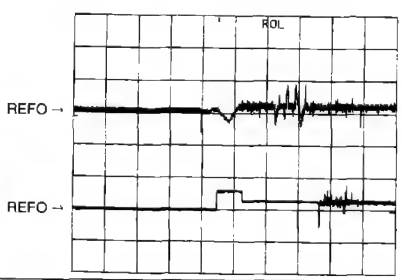
⑥ CH1: FEY 0.1V/div. 20ms/div.
③ CH2: FIN 0.2V/div.
Normal mode: Play



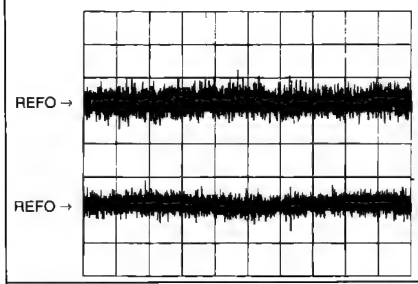
③ CH1: FIN 0.5V/div. 0.5s/div.
⑩ CH2: SIN 1V/div.
Normal mode: Focus close (12cm)



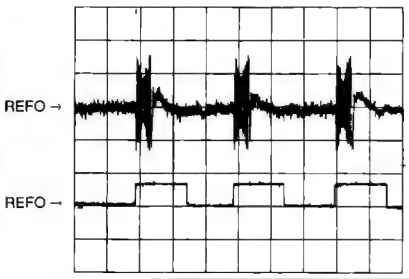
③ CH1: FIN 0.5V/div. 0.5s/div.
⑩ CH2: SIN 1V/div.
Normal mode: Focus close (8cm)



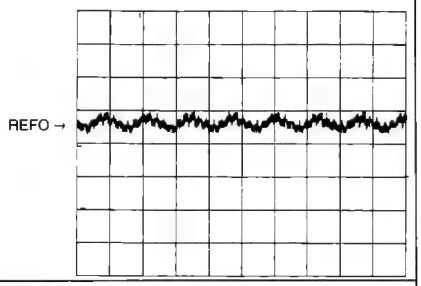
⑧ CH1: TEY 0.2V/div.
⑨ CH2: TIN 0.2V/div. 20ms/div.
Normal mode: play



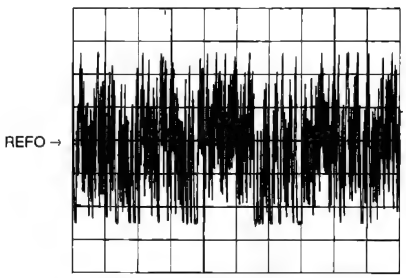
⑧ CH1: TEY 0.5V/div.
⑪ CH2: SD 0.5V/div. 5ms/div.



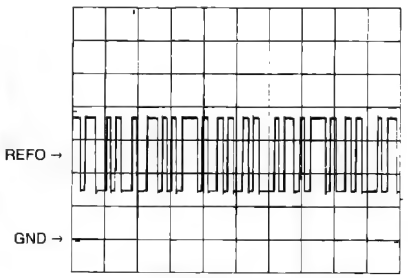
⑩ SIN 0.5V/div. 0.1s/div.
Normal mode: Play (12cm)



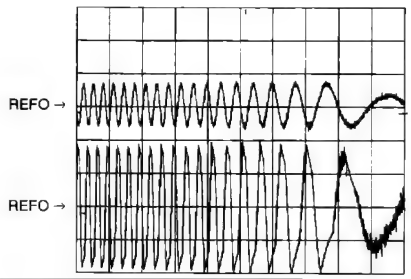
⑩ SIN 0.5V/div. 10ms/div.
Long Search (12cm)



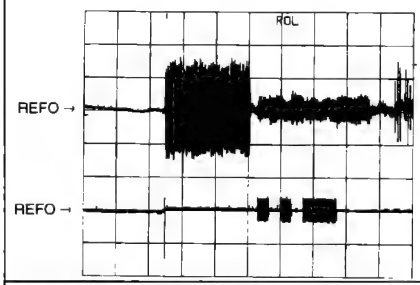
⑫ EFM 1V/div. 5µs/div.
Play



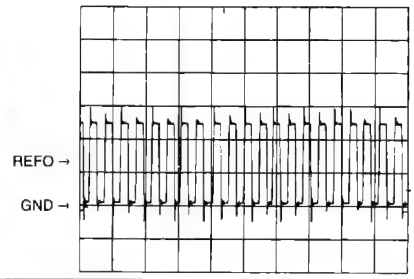
⑧ CH1: TEY 1V/div.
⑬ CH2: TEC 1V/div. 2ms/div.
Test mode: Focus close
Tracking open



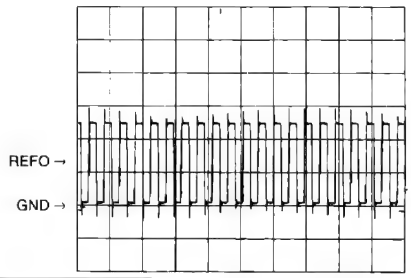
⑧ CH1: TEY 0.5V/div.
⑥ CH2: FEY 0.5V/div. 0.2s/div.
Normal mode: AGC after focus close



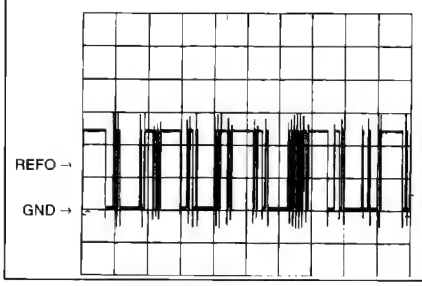
⑭ PLCK 2V/div. 0.5µs/div.
Play



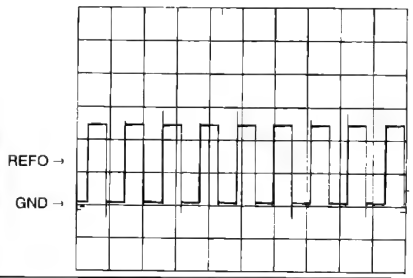
⑮ SCKO 2V/div. 1µs/div.
Play



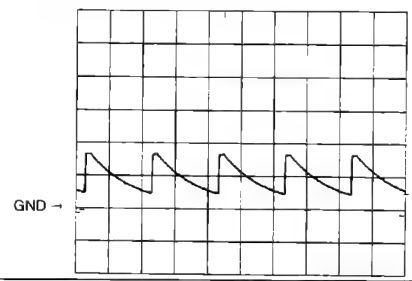
⑯ Dout 2V/div. 10µs/div.
Play



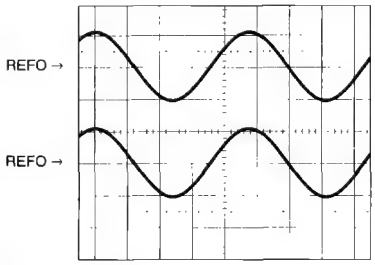
⑰ LRCK 2V/div. 20µs/div.



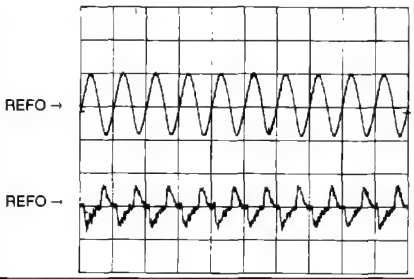
⑱ VD 5V/div. 50ms/div.
Normal mode: No disc



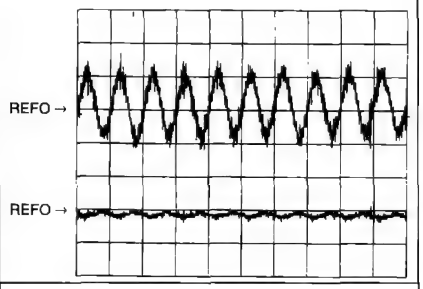
⑲ CH1: R OUT 1V/div.
⑳ CH2: L OUT 1V/div. 0.2ms/div.
Normal mode: Play (1kHz 0dB)



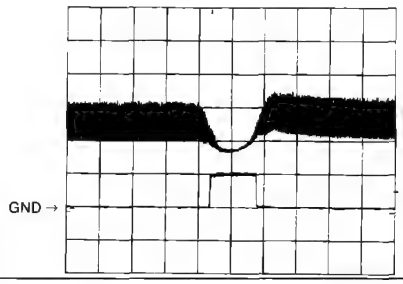
⑥ CH1: FEY 0.2V/div.
③ CH2: FIN 0.5V/div. 1ms/div.
Normal mode: During AGC



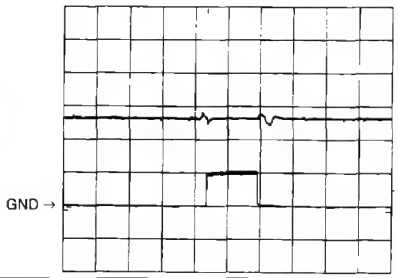
⑧ CH1: TEY 0.2V/div.
⑨ CH2: TIN 0.5V/div. 1ms/div.
Normal mode: During AGC



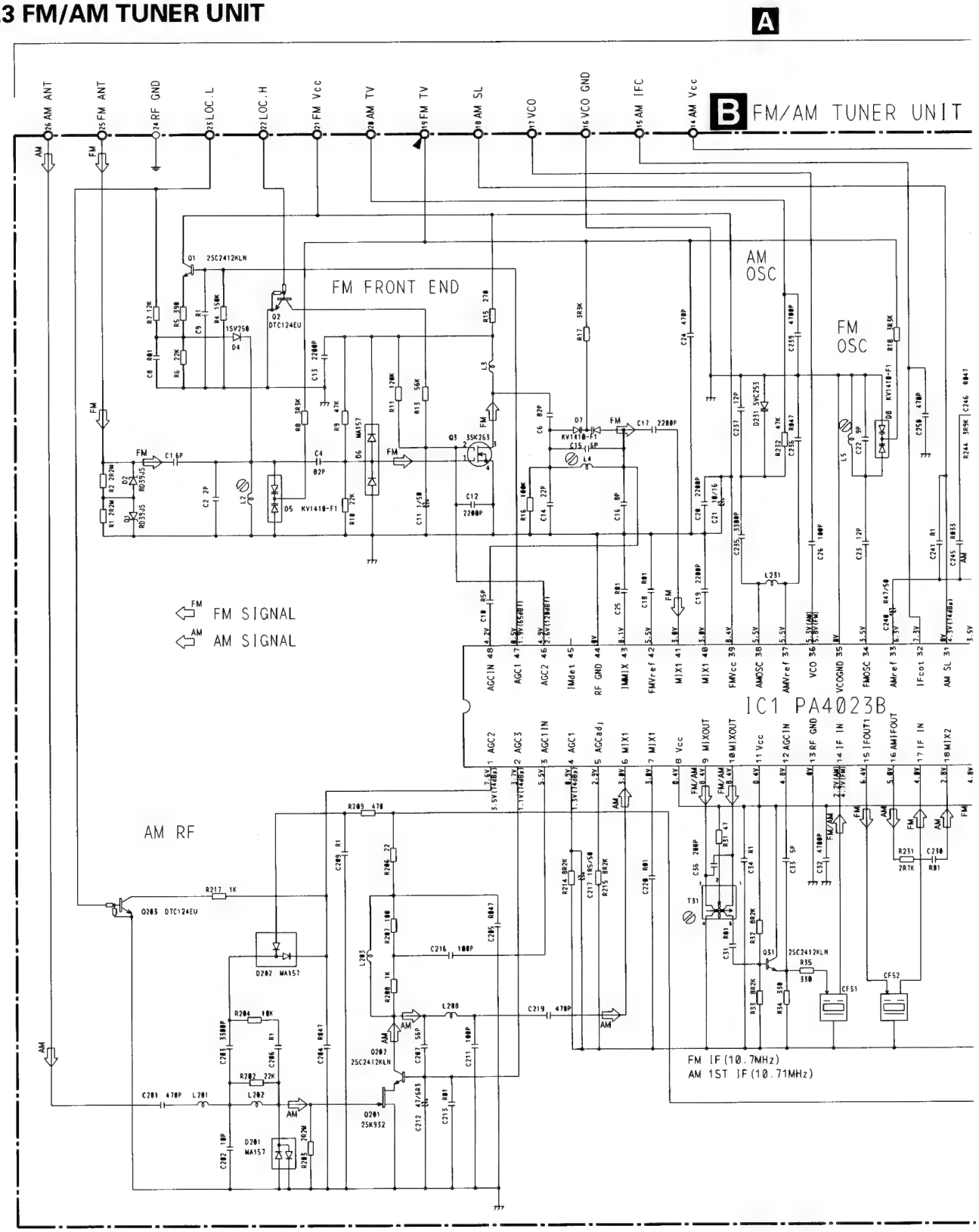
① CH1: RFO 1V/div.
㉑ CH2: HOLD 5V/div. 0.5ms/div.
Normal mode: The defect part passes 800μm



③ CH1: FIN 1V/div.
㉑ CH2: HOLD 5V/div. 0.5ms/div.
Normal mode: The defect part passes 800μm



3.3 FM/AM TUNER UNIT



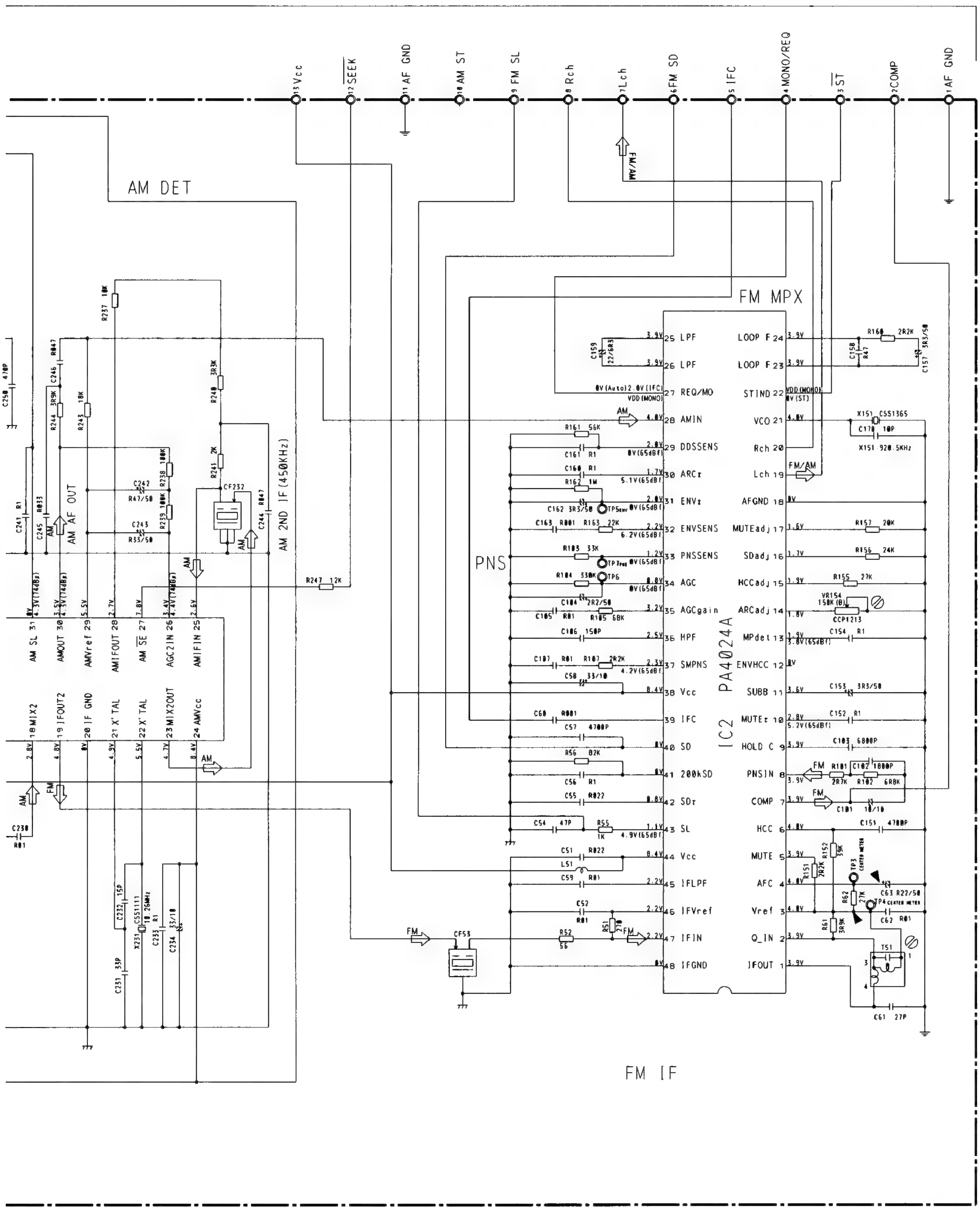
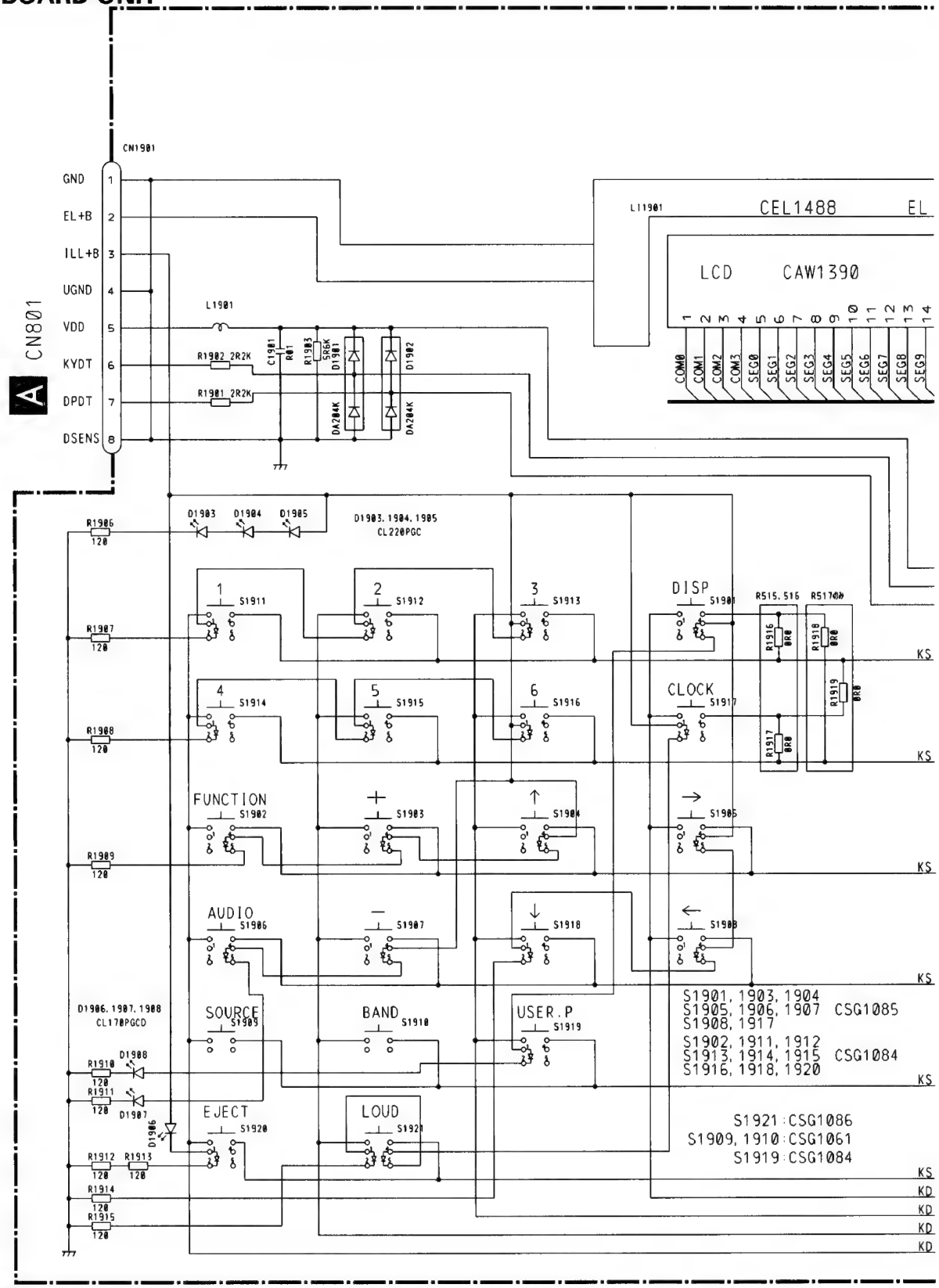

AM DET
AM AF OUT
AM 2ND IF (450KHz)
PNS
FM MPX
PA4024A
IC2
FM IF
Vcc
SEEK
AF GND
AM ST
FM SL
Rch
Lch
FM SD
IFC
MONO/REQ
ST
COMP
AF GND

Fig. 13

3.4 KEYBOARD UNIT



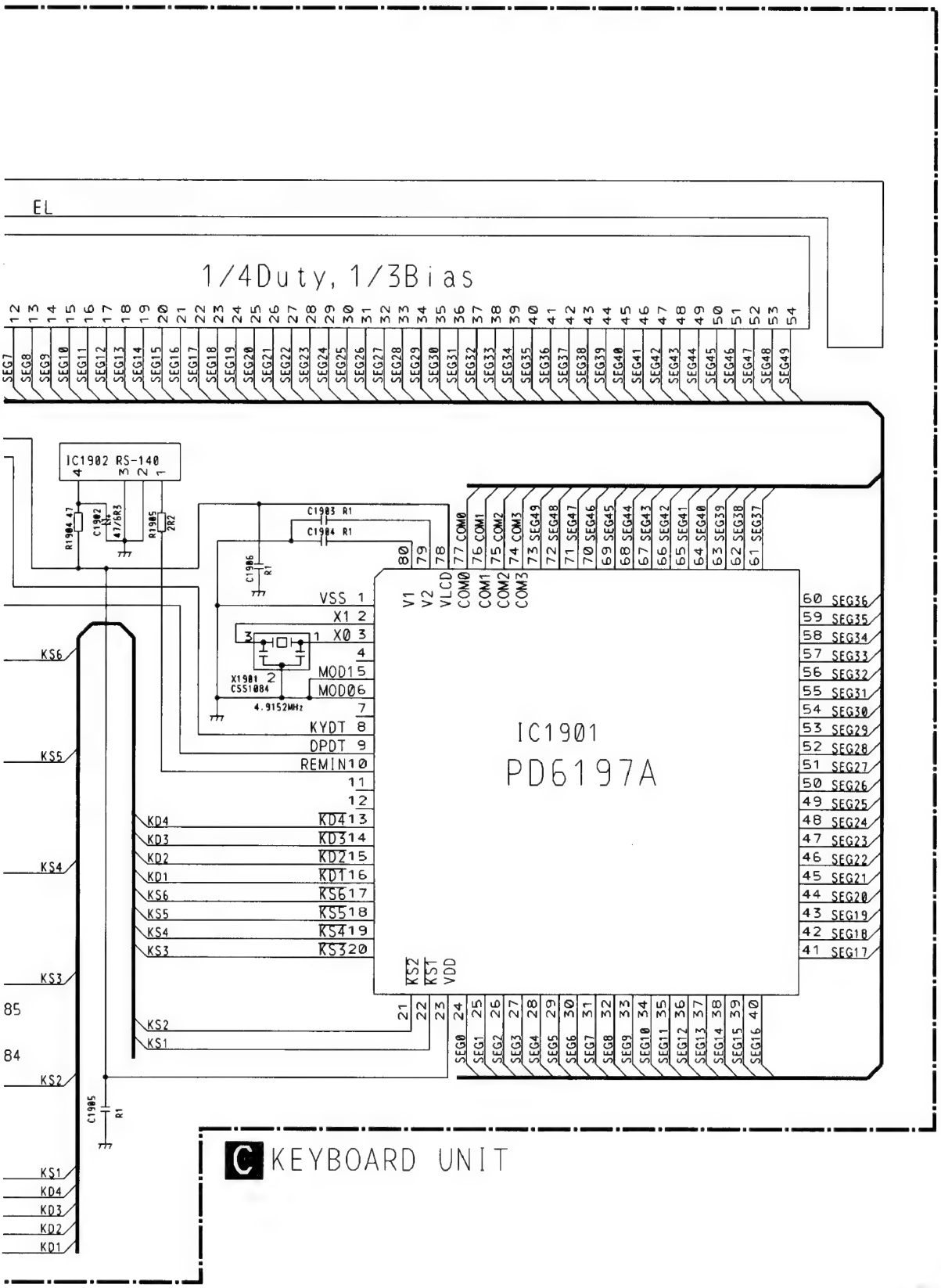

EL
1/4Duty, 1/3Bias
IC1902 RS-140
IC1901
PD6197A
C KEYBOARD UNIT

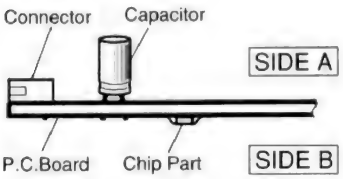
Fig. 14

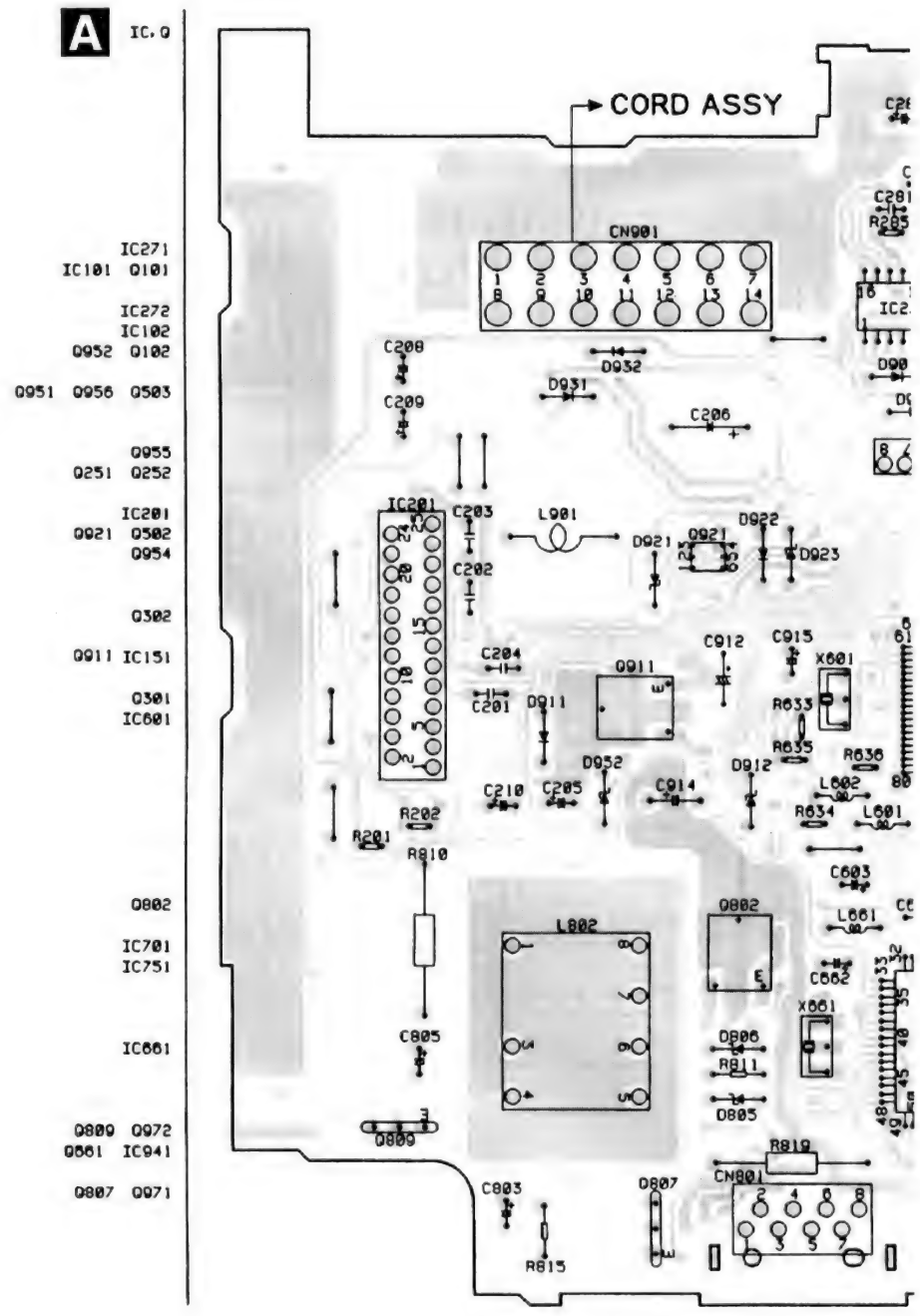
4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP PCB

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination. For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams





SIDE A

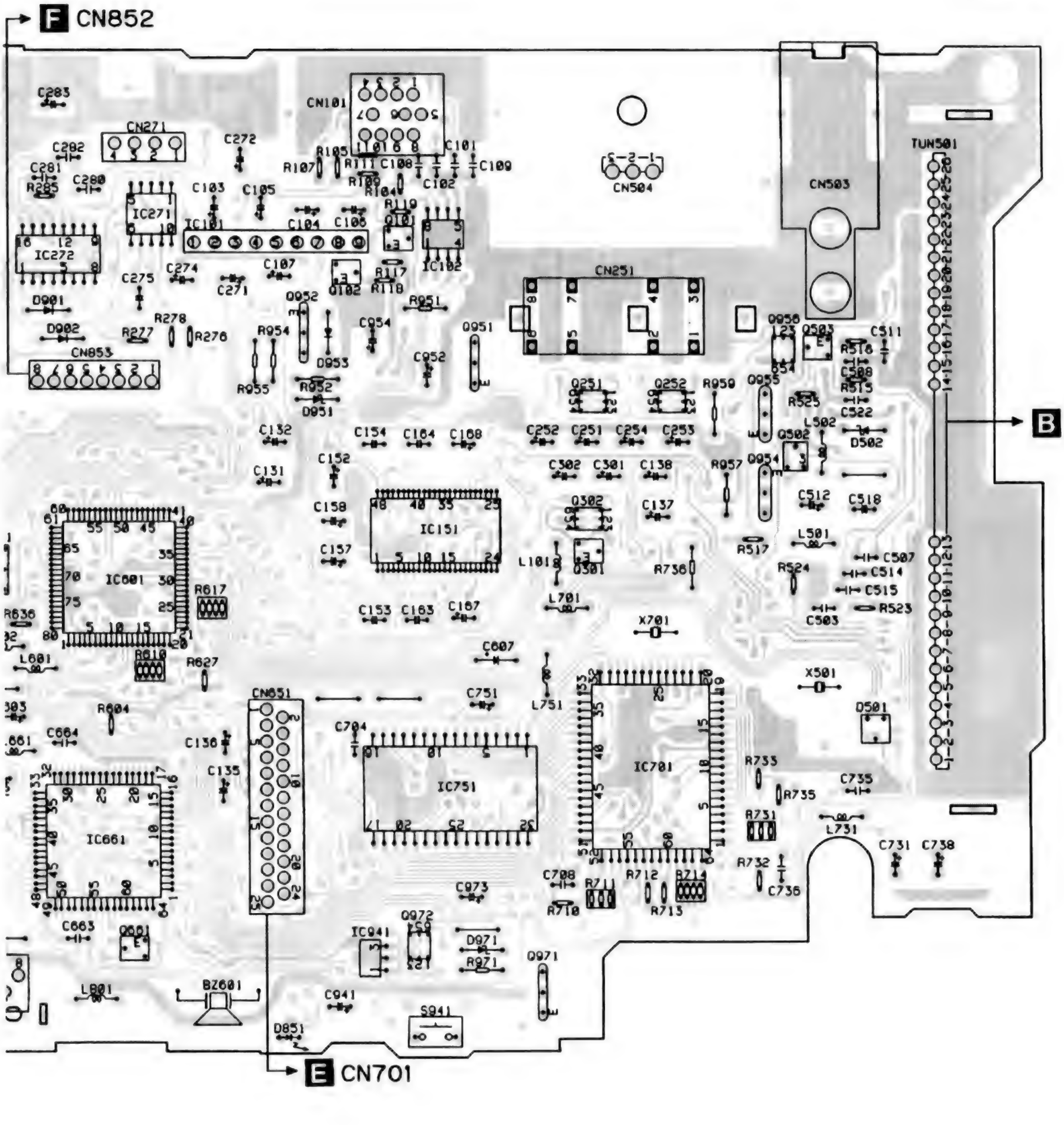
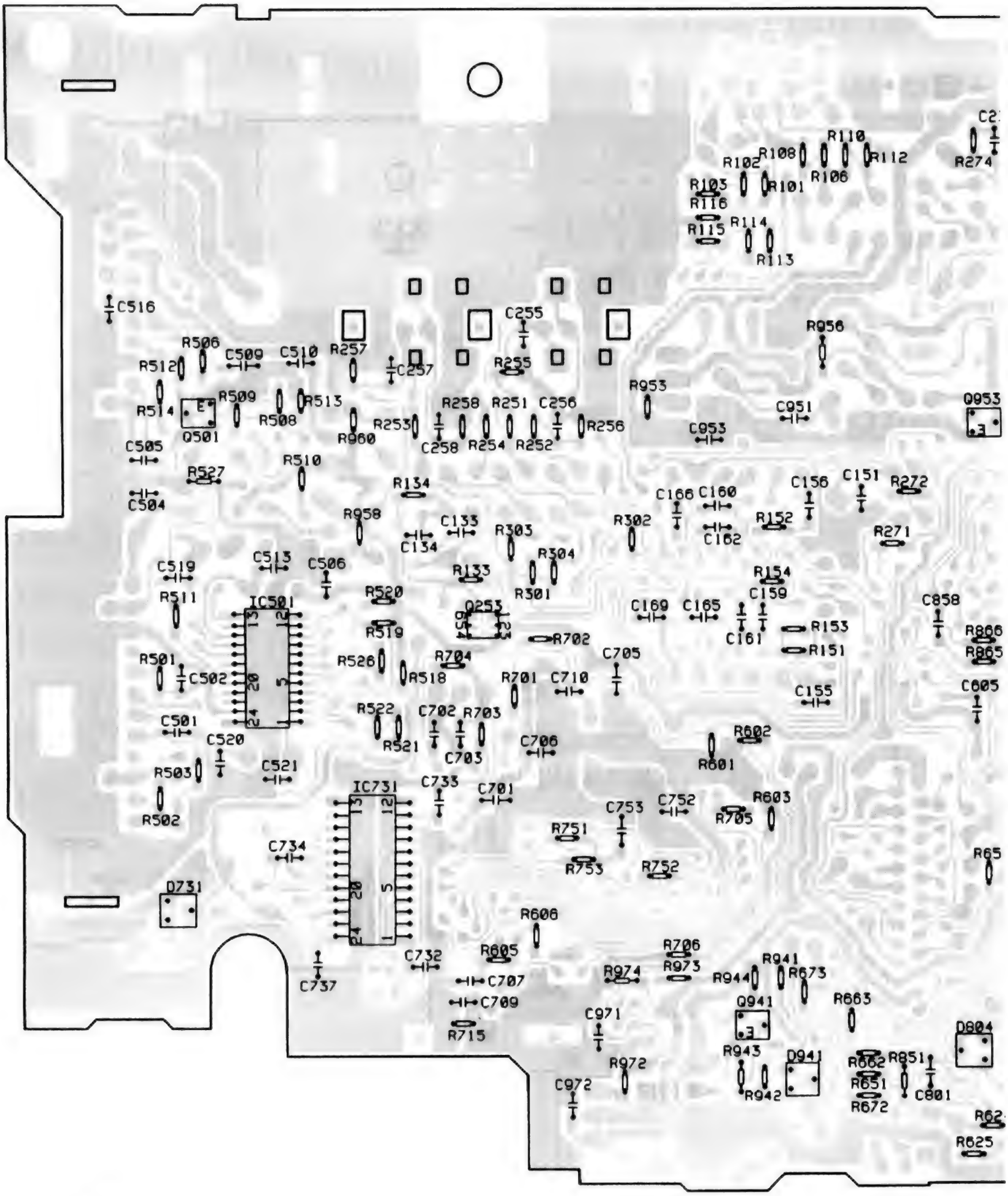

F CN852
CN101
CN271
CN504
CN503
TUN501
IC271
IC272
IC101
IC102
CN251
CN853
B
IC601
IC151
IC701
IC751
IC661
CN651
BZ601
S941
E CN701

Fig. 15

A


IC501
IC731
Q501
Q253
Q941
Q953
D731
D941
D804
R102 R108 R110 R112 R274 R103 R101 R106 R116 R115 R114 R113
C516 R506 C509 C510 R257 C257 C255 R255 R512 R514 R509 R508 R513
R258 R251 C256 R253 R960 C258 R254 R252 R256 R953 R956 C951 C953
C505 R527 R510 C504 R134 R958 C133 C134 R303 R302 C166 C160 C162 C156 C151 R272 R152 R271
C519 C513 C506 R133 R304 R301 R154 C159 R511 R520 C169 C165 C858 R153 R151 C161
R519 R702 R501 C502 R526 R518 R704 C705 R866 R865 R701 C710 C605 C155
R522 C702 R703 C501 C520 R521 C703 C706 R602 R601
R503 C521 C733 C701 C752 R603 R705 C753 R502 R751 R753 R752 R65
C734 R606 R706 R605 R941 C732 R974 R973 R944 R673 C707 C737 C709 R663 R715 C971
R943 R972 R662 R851 C972 R942 R651 C801 R672 R625 C2

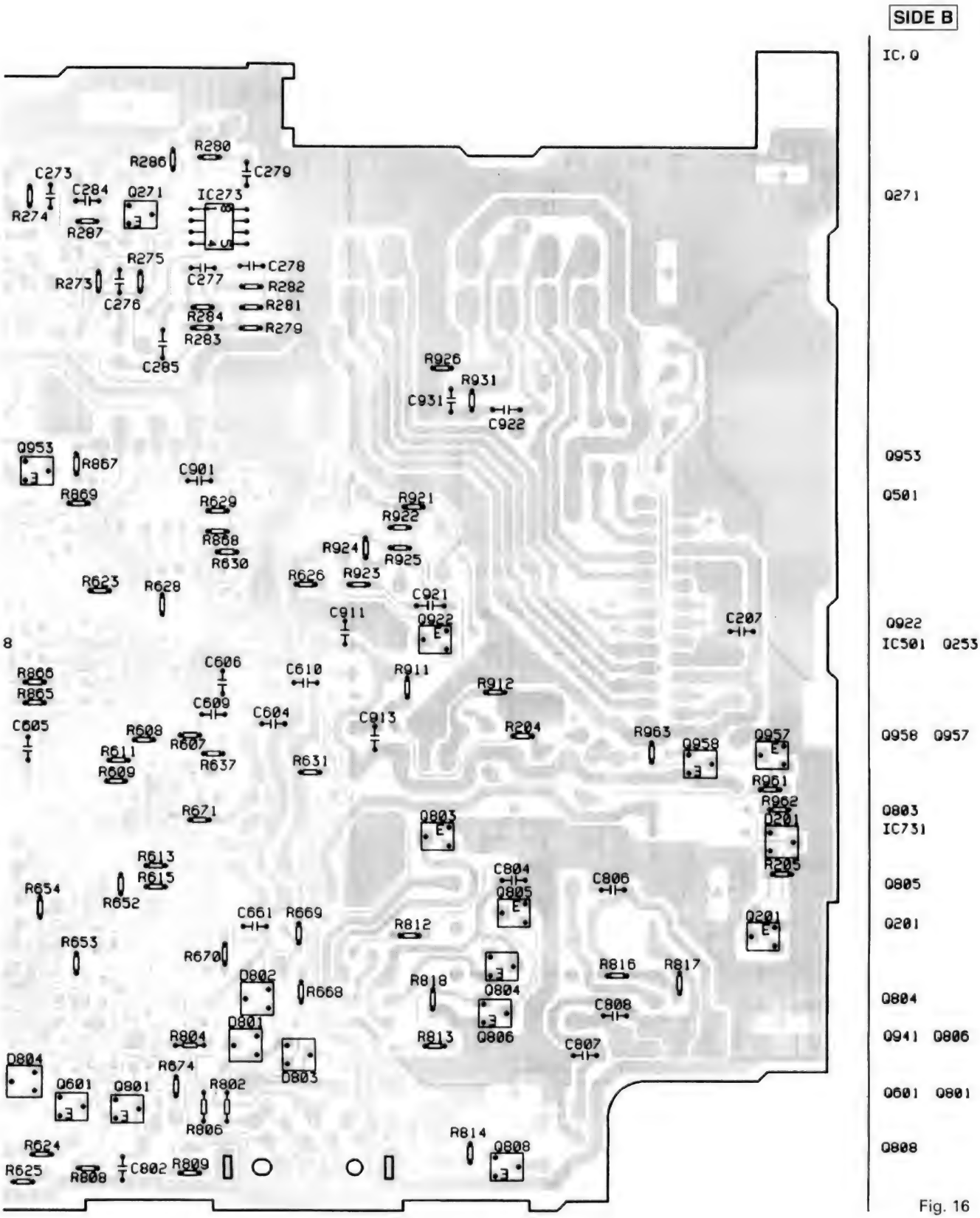

SIDE B
IC, Q
Q271
Q953
Q501
Q922
IC501 Q253
Q958 Q957
Q803
IC731
Q805
Q201
Q804
Q941 Q806
Q601 Q801
Q808
R280
R286
C279
C273
C284
Q271
IC273
R274
R287
R275
R273
C276
C277
C278
R282
R281
R284
R283
R279
C285
R926
R931
C931
C922
Q953
R867
C901
R869
R629
R921
R922
R868
R924
R925
R630
R623
R628
R626
R923
C921
C911
Q922
C207
8
C606
C610
R911
R912
R866
R865
C609
C604
C913
R204
R963
C605
R608
R607
R611
R609
R637
R631
Q958
Q957
R961
R962
Q201
R205
R671
Q803
R613
R615
C804
C806
R654
R652
Q805
C661
R669
R812
Q201
R653
R670
R816
R817
Q802
R668
R818
Q804
C808
Q801
R804
R813
Q806
C807
C803
R674
Q804
Q601
Q801
R802
R806
R814
R624
Q808
R625
R808
C802
R809

Fig. 16

4.2 CONTROL UNIT,DETECTOR PCB

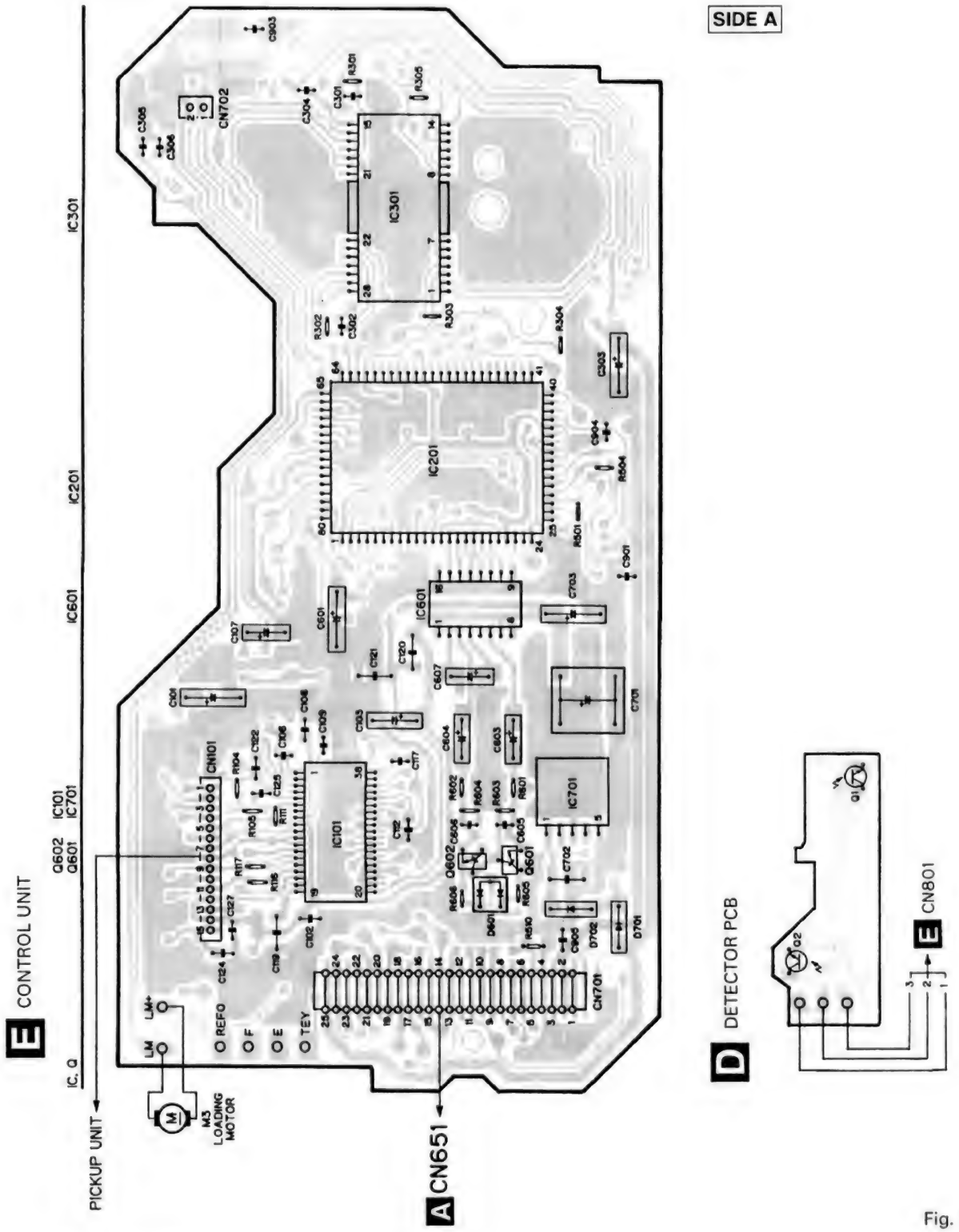


Fig. 17

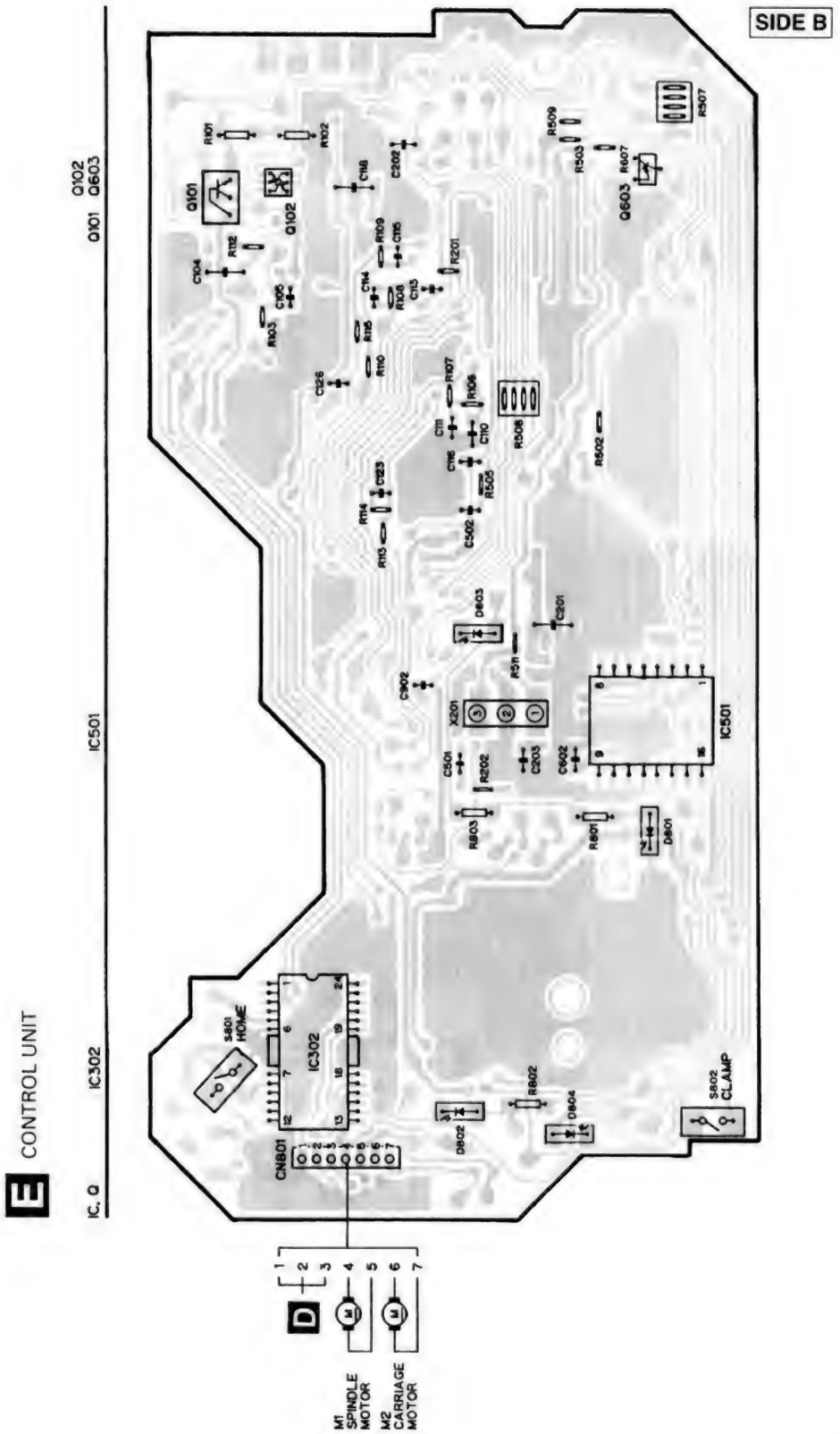

SIDE B
E CONTROL UNIT
IC, Q
IC302
IC501
Q102
Q101 Q603
S801 HOME
IC302
CN801
S802 CLAMP
IC501
D
M1 SPINDLE MOTOR
M2 CARRIAGE MOTOR

Fig. 18

4.3 KEYBOARD UNIT

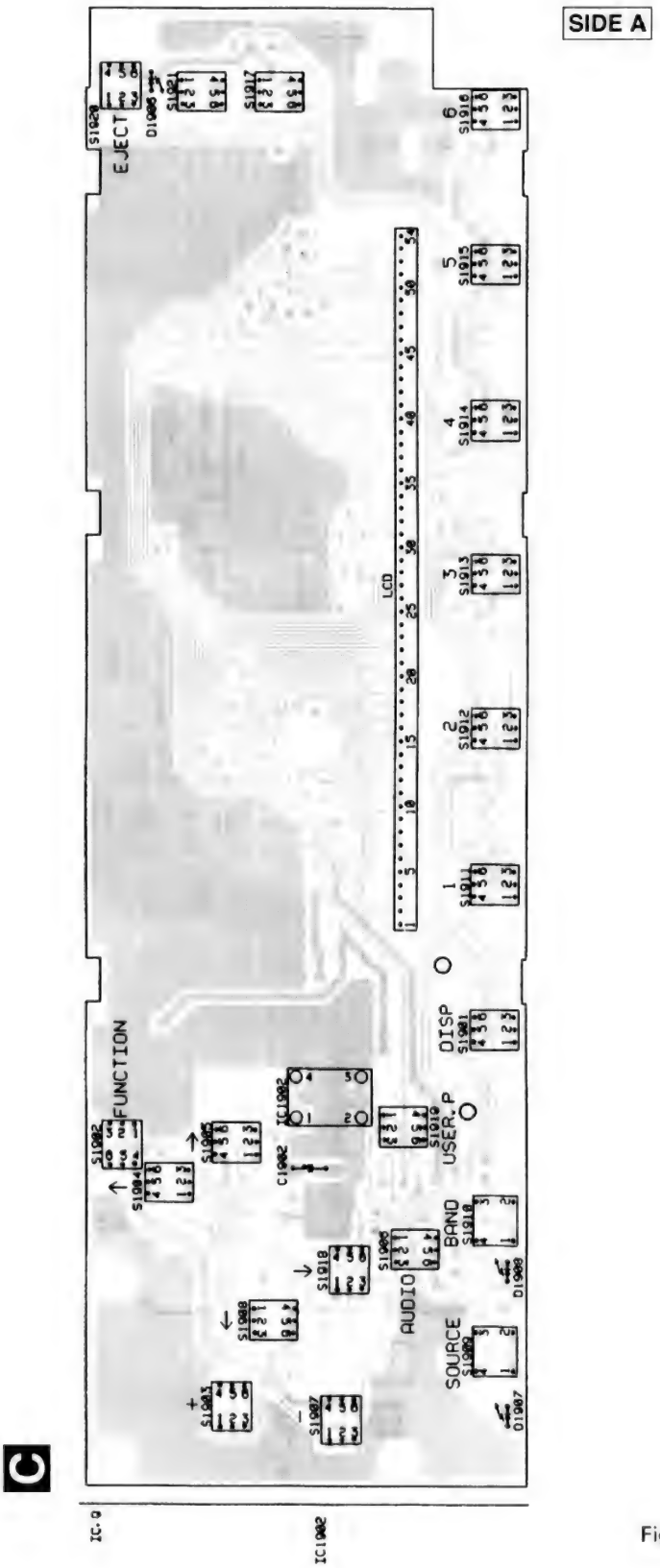


Fig. 19

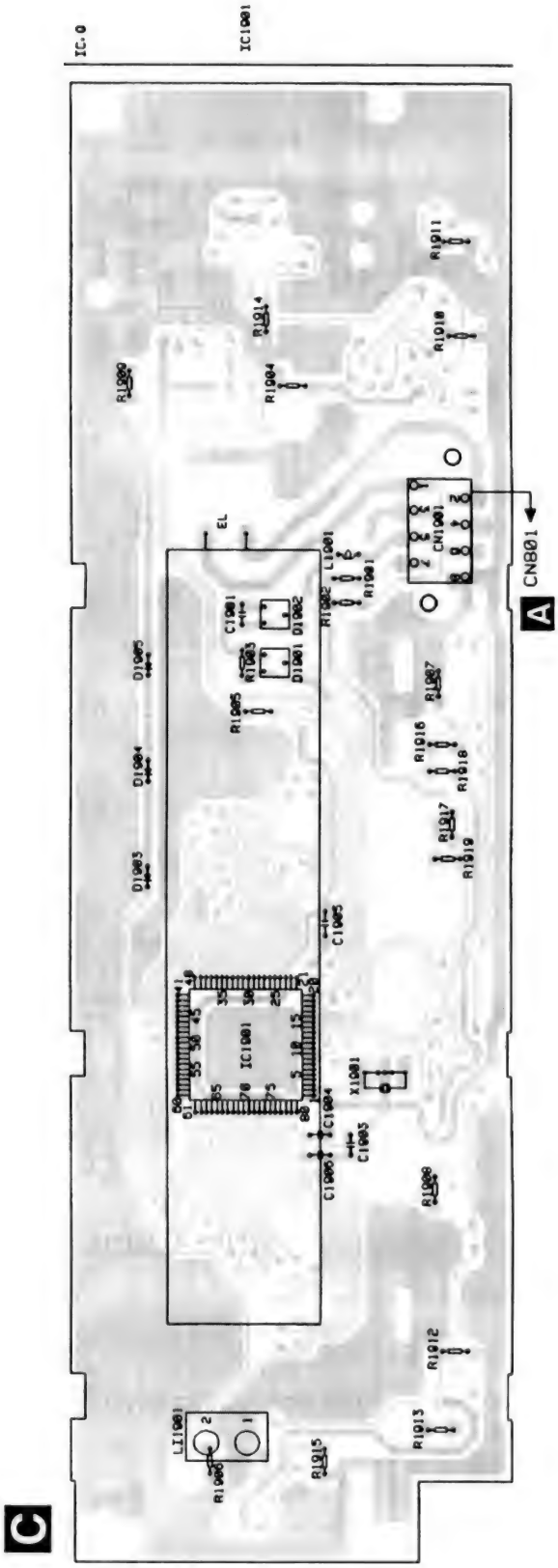


Fig. 20

4.4 FM/AM TUNER UNIT

SIDE A

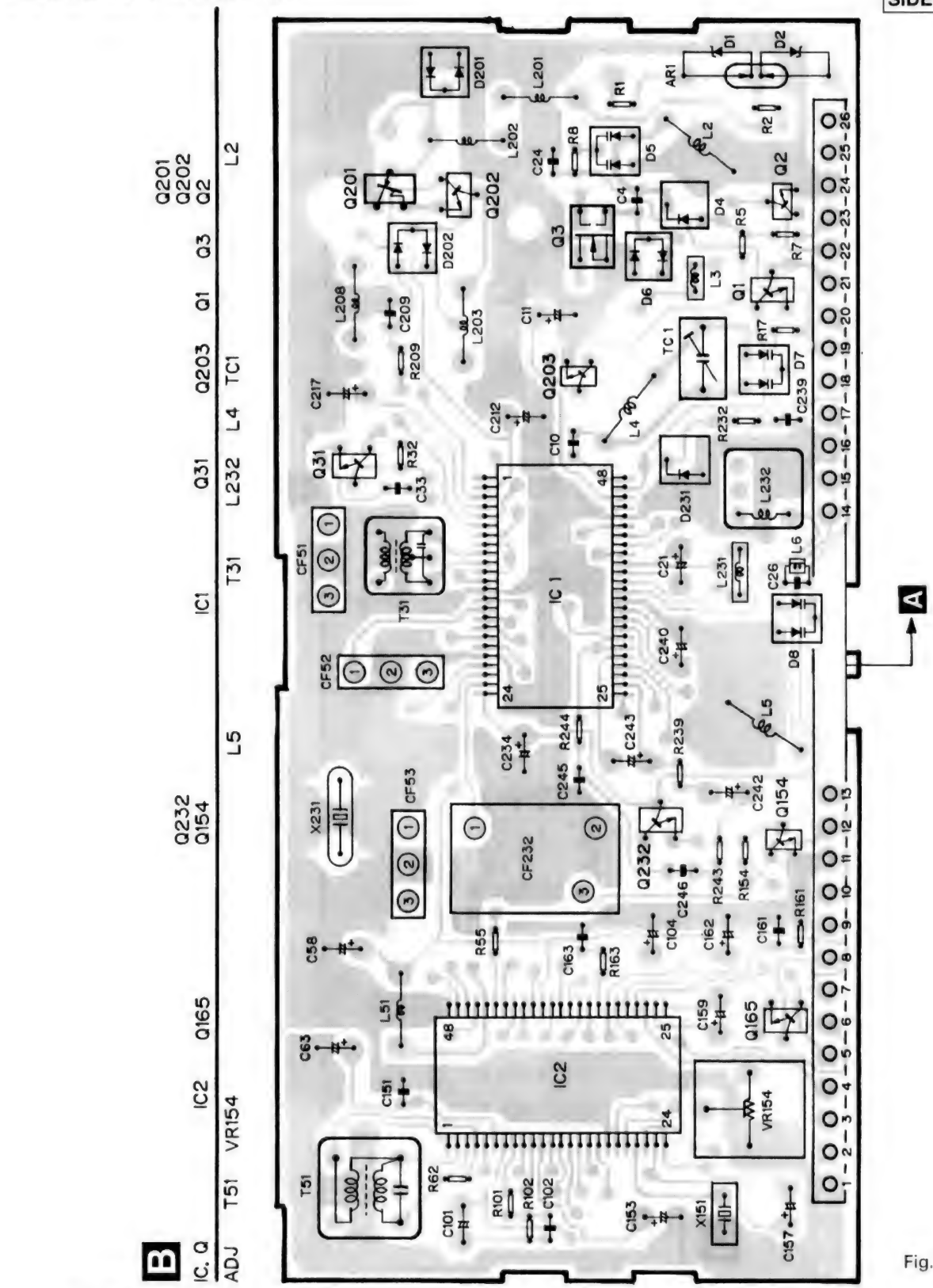


Fig. 21

SIDE B

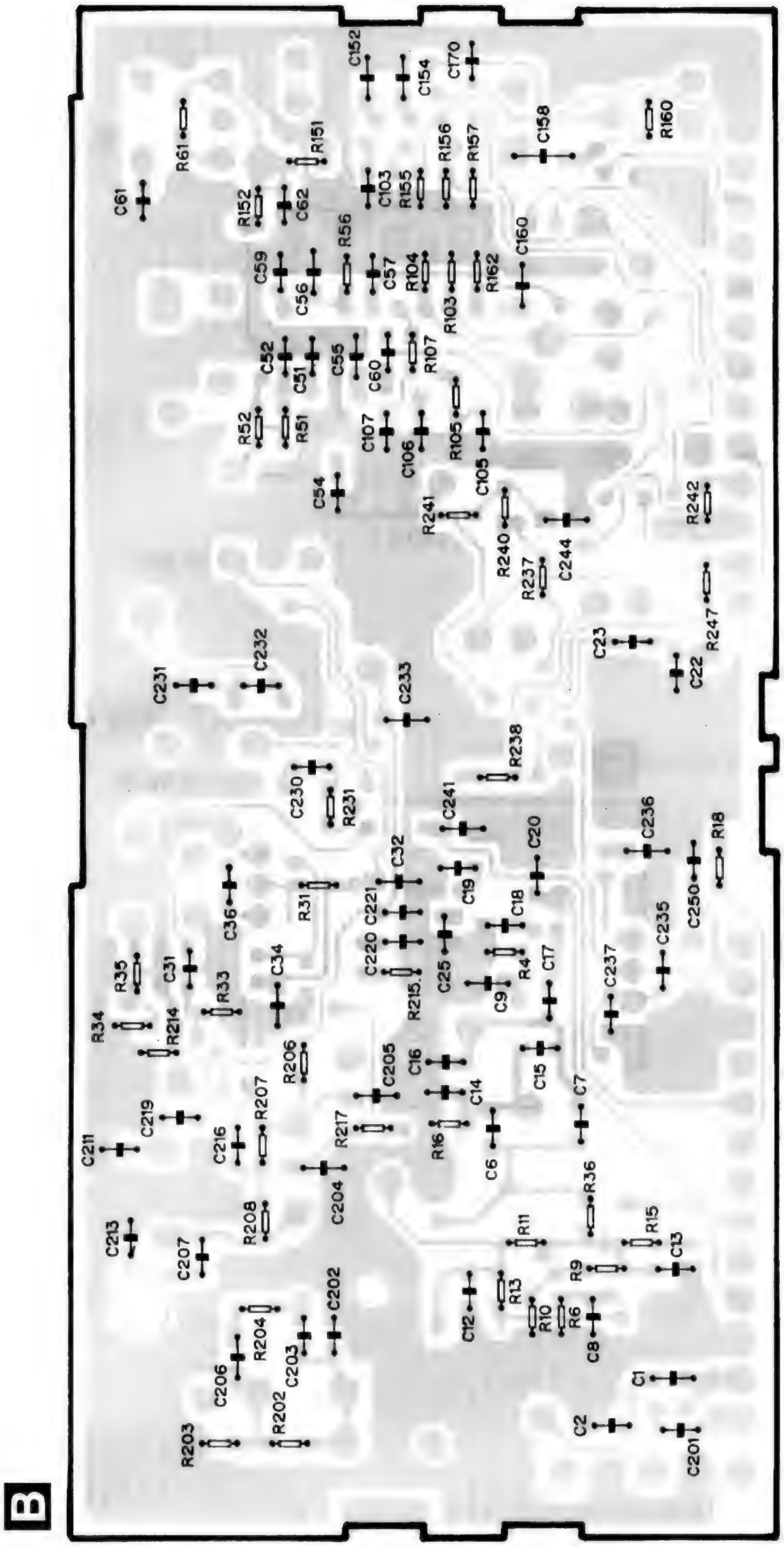

C152
C154
C170
R61
R151
R156
R157
C158
R160
C61
R152
C62
C103
R155
C59
C56
R56
C57
R104
R103
R162
C160
C52
C51
C55
C60
R107
R52
R51
C107
C106
R105
C105
C54
R241
R240
R237
C244
R242
R247
C23
C22
C231
C232
C233
R238
C230
R231
C241
C20
C236
R18
C36
R31
C32
C221
C19
C18
C220
C25
R4
C17
C235
C250
R35
C31
R33
C34
R215
C9
C237
R34
R214
R206
C205
C16
C15
C7
C14
C219
R207
C211
C216
R217
R16
C6
C204
R208
R36
C213
C207
R11
R15
C13
R9
C12
R13
R10
R6
C8
C202
R204
C206
C203
C1
C2
C201
R203
R202
B

Fig. 22

4.5 DETACH ALARM UNIT(DEH-59DH)

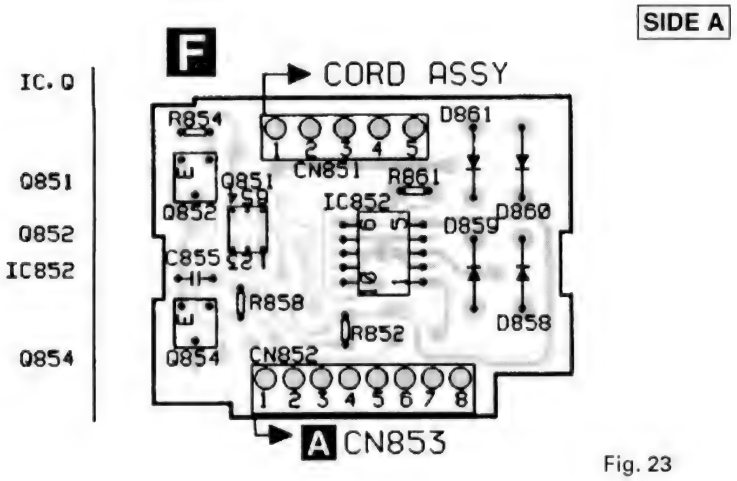


Fig. 23

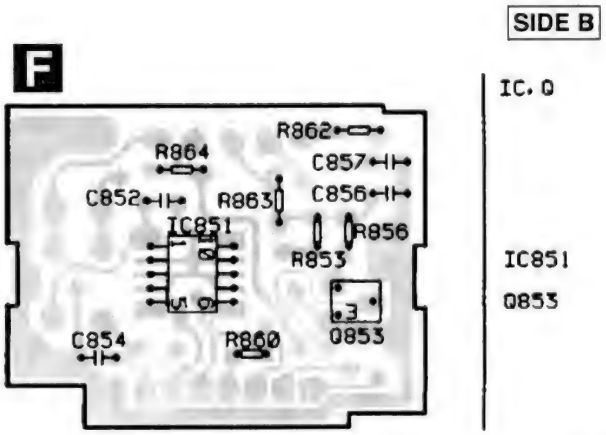


Fig. 24

5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

B Unit Number : CWE1417
Unit Name : FM/AM Tuner Unit

Circuit Symbol & No.	Part Name	Part No.
MISCELLANEOUS		
IC 1	IC	PA4023B
IC 2	IC	PA4024A
Q 1	Transistor	2SC2412KLN
Q 2	Transistor	DTC124EU
Q 3	FET	3SK263
Q 31	Transistor	2SC2412KLN
Q 201	FET	2SK932
Q 202	Transistor	2SC2412KLN
Q 203	Transistor	DTC124EU
D 1	Diode	RD39JS()
D 2	Diode	RD39JS
D 4	Diode	1SV250
D 5	Diode	KV1410-F1
D 6	Diode	MA157
D 7	Diode	KV1410-F1
D 8	Diode	KV1410-F1
D 201	Diode	MA157
D 202	Diode	MA157
D 231	Diode	SVC253
L 2	Coil	CTC1108
L 3	Inductor	LCTB2R2K2125
L 4	Coil	CTC1108
L 5	Coil	CTC1107
L 51	Ferri-Inductor	LAU150K
L 201	Ferri-Inductor	LAU4R7K
L 202	Ferri-Inductor	LAU330K
L 203	Inductor	CTF1287
L 208	Inductor	LAU121K
L 231	Inductor	LCTA3R3J3225
T 31	Coil	CTE1116
T 51	Coil	CTC1136
CF 51	Ceramic Filter	CTF1290
CF 52	Ceramic Filter	CTF1290
CF 53	Ceramic Filter	CTF1290
CF 232	Ceramic Filter	CTF1348
X 151	Resonator 920.5kHz	CSS1365
X 231	Crystal Resonator 10.26MHz	CSS1111
VR 154	Semi-fixed 150kΩ(B)	CCP1213
RESISTORS		
R 1		RS1/16S225J
R 2		RS1/16S225J
R 4		RS1/16S154J
R 5		RS1/16S391J
R 6		RS1/16S223J
R 7		RS1/16S123J
R 8		RS1/16S332J
R 9		RS1/16S473J
R 10		RS1/16S223J
R 11		RS1/16S124J
R 13		RS1/16S563J
R 15		RS1/16S271J
R 16		RS1/16S104J
R 17		RS1/16S332J
R 18		RS1/16S332J
R 31		RS1/16S470J
R 32		RS1/16S822J
R 33		RS1/16S822J
R 34		RS1/16S331J
R 35		RS1/16S331J
R 51		RS1/16S271J
R 52		RS1/16S560J
R 55		RS1/16S102J
R 56		RS1/16S823J
R 61		RS1/16S392J
R 62		RS1/16S273J
R 101		RS1/16S272J
R 102		RS1/16S682J
R 103		RS1/16S333J
R 104		RS1/16S334J
R 105		RS1/16S683J
R 107		RS1/16S222J
R 151		RS1/16S222J
R 152		RS1/16S393J
R 155		RS1/16S273J
R 156		RS1/16S243J
R 157		RS1/16S203J
R 160		RS1/16S222J
R 161		RS1/16S563J
R 162		RS1/16S105J
R 163		RS1/16S223J
R 202		RS1/16S223J
R 203		RS1/16S225J
R 204		RS1/16S103J
R 206		RS1/16S220J
R 207		RS1/16S101J
R 208		RS1/16S102J
R 209		RS1/16S471J
R 214		RS1/16S822J
R 215		RS1/16S822J
R 217		RS1/16S102J
R 231		RS1/16S272J
R 232		RS1/16S473J
R 237		RS1/16S103J
R 238		RS1/16S104J
R 239		RS1/16S104J
R 240		RS1/16S332J
R 241		RS1/16S202J
R 243		RS1/16S183J
R 244		RS1/16S392J
R 247		RS1/16S123J

Circuit Symbol & No.	Part Name	Part No.
CAPACITORS		
C 1		CCSQCH6R0D50
C 2		CCSRCK2R0C50
C 4		CCSRCH820J50
C 6		CCSRCH820J50
C 8		CKSRYB103K25
C 9		CKSQYB104K16
C 10		CCSRCKR50C50
C 11		CEJA1R0M50
C 12		CKSRYB222K50
C 13		CKSRYB222K50
C 14		CCSRCH220J50
C 15		CCSRCH6R0D50
C 16		CCSRCH8R0D50
C 17		CKSRYB222K50
C 18		CKSRYB103K25
C 19		CKSRYB222K50
C 20		CKSRYB222K50
C 21		CEJA100M16
C 22		CCSRTH9R0D50
C 23		CCSRTH120J50
C 24		CCSRCH471J50
C 25		CKSRYB103K25
C 26		CCSRCH101J50
C 31		CKSRYB103K25
C 32		CKSQYB472K50
C 33		CCSRCH5R0C50
C 34		CKSQYB104K16
C 36		CCSRRH201J50
C 51		CKSRYB223K25
C 52		CKSRYB103K25
C 54		CCSRCH470J50
C 55		CKSQYB223K25
C 56		CKSQYB104K16
C 57		CKSRYB472K50
C 58		CEJA330M10
C 59		CKSRYB103K25
C 60		CKSRYB102K50
C 61		CCSRCH270J50
C 62		CKSRYB103K25
C 63		CEJAR22M50
C 101		CEJANP100M10
C 102		CKSRYB182K50
C 103		CKSRYB682K25
C 104		CEJA2R2M50
C 105		CKSRYB103K25
C 106		CCSRCH151J50
C 107		CKSRYB103K25
C 151		CKSRYB472K50
C 152		CKSQYB104K16
C 153		CEJA3R3M50
C 154		CKSQYB104K16
C 157		CEJA3R3M50
C 158		CKSYB474K16
C 159		CEJA220M6R3
C 160		CKSQYB104K16
C 161		CKSQYB104K16
C 162		CEJA3R3M50
C 163		CKSRYB102K50
C 170		CCSRCH100D50
C 201		CCSRCH471J50
C 202		CCSRCH100D50
C 203		CKSRYB332K50
C 204		CKSQYB473K16
C 205		CKSQYB473K16
C 206		CKSQYB104K16
C 207		CCSRCH560J50
C 209		CKSQYB104K16
C 211		CCSRCH101J50
C 212		CEJA470M6R3
C 213		CKSRYB103K25
C 216		CCSRCH101J50
C 217		CEJA1R5M50
C 219		CCSRCH471J50
C 220		CKSRYB103K25
C 230		CKSRYB103K25
C 231		CCSRCH330J50
C 232		CCSRCH150J50
C 233		CKSQYB104K16
C 234		CEJA330M10
C 235		CKSRYB332K50
C 236		CKSQYB473K16
C 237		CCSRCH120J50
C 239		CKSRYB472K50
C 240		CEJAR47M50
C 241		CKSQYB104K16
C 242		CEJAR47M50
C 243		CEJAR33M50
C 244		CKSQYB473K16
C 245		CKSRYB333K16
C 246		CKSQYB473K16
C 250		CCSRCH471J50

A Unit Number : CWX2067(DEH-59DH)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 151	IC		SN761027DL
IC 201	IC		TDA7384A
IC 501	IC		LC72146M
IC 601	IC		PD4723A
IC 661	IC		PD4623B
IC 941	IC		S-80734ANDYI
Q 201	Transistor		DTC124EK
Q 251	Transistor		IMH3A
Q 252	Transistor		IMH3A
Q 253	Transistor		IMD2A
Q 301	Transistor		DTA124EK
Q 302	Transistor		IMH3A
Q 501	Transistor		2SC2412K
Q 502	Transistor		2SK208
Q 503	Transistor		2SC2412K
Q 601	Transistor		DTC124EK
Q 661	Transistor		DTA124EK
Q 801	Transistor		2SA1037K
Q 802	Transistor		2SD1760F5
Q 803	Transistor		DTC114EK
Q 804	Transistor		DTA143EK
Q 805	Transistor		DTC114EK
Q 806	Transistor		2SC2412K
Q 807	Transistor		2SB1238
Q 808	Transistor		DTC143EK
Q 809	Transistor		2SD1864
Q 911	Transistor		2SD1760F5
Q 921	Transistor		IMX1
Q 922	Transistor		DTC114EK
Q 951	Transistor		2SD2396
Q 952	Transistor		2SB1243
Q 953	Transistor		DTC124EK
Q 954	Transistor		2SA1674
Q 955	Transistor		2SA1674
Q 956	Transistor		IMH1A

Circuit Symbol & No.	Part Name	Part No.
Q 957	Transistor	2SC2412K
Q 958	Transistor	DTC144EK
Q 971	Transistor	2SD2396
Q 972	Transistor	IMD2A
D 201	Diode	DAN202K
D 501	Diode	DAN202K
D 502	Diode	HZS3LL(B)
D 801	Diode	DA204K
D 802	Diode	DA204K
D 803	Diode	DA204K
D 804	Diode	MA3062(M)
D 805	Diode	HZS9L(B3)
D 806		HZS5LL(A)
D 851	LED	BR4361F
D 901	Diode	ERA15-02VH
D 902	Diode	ERA15-02VH
D 911	Diode	ERA15-02VH
D 912	Diode	HZS6L(B1)
D 921	Diode	HZS7L(C3)
D 922	Diode	1SS133
D 923	Diode	HZS7L(A1)
D 931	Diode	ERA15-02VH
D 932	Diode	ERA15-02VH
D 941	Diode	DAN212K
D 951	Diode	HZS9L(B3)
D 952	Diode	HZS9L(A2)
D 953	Diode	1SS133
D 971	Diode	HZS9L(B1)
L 501	Ferri-Inductor	LAU2R2K
L 502	Ferri-Inductor	LAU220K
L 601	Ferri-Inductor	LAU2R2K
L 602	Inductor	LAU100K
L 661	Ferri-Inductor	LAU2R2K
L 801	Ferri-Inductor	LAU2R2K
L 802	Transformer	MTX9005
L 901	Choke Coil 600H	CTH1171
X 501	7.2MHz	CSS1334
X 601	Ceramic Resonator 4.194MHz	CSS1047
X 661	Resonator 8.380MHz	CSS1354
	Detach Alarm Unit	CWM5291
	FM/AM Tuner Unit	CWE1417
BZ 601	Buzzer	CPV1011

RESISTORS

Circuit Symbol & No.	Part Name	Part No.
R 133		RS1/10S162J
R 134		RS1/10S162J
R 151		RS1/10S272J
R 152		RS1/10S272J
R 153		RS1/10S151J
R 154		RS1/10S151J
R 201		RS1/10S103J
R 202		RS1/10S331J
R 204		RS1/10S103J
R 205		RS1/10S103J
R 251		RS1/10S821J
R 252		RS1/10S821J
R 253		RS1/10S471J
R 254		RS1/10S471J
R 255		RS1/10S223J
R 256		RS1/10S223J
R 257		RS1/10S223J
R 258		RS1/10S223J
R 301		RS1/10S471J
R 302		RS1/10S471J
R 303		RS1/10S104J
R 304		RS1/10S104J
R 501		RS1/10S102J
R 502		RS1/10S102J
R 503		RS1/10S102J
R 506		RS1/10S103J
R 508		RS1/10S472J
R 509		RS1/10S152J
R 510		RS1/10S102J
R 511		RS1/10S472J
R 512		RS1/10S103J
R 513		RS1/10S102J
R 514		RS1/10S0R0J
R 515		RS1/10S103J
R 516		RS1/10S222J
R 517		RS1/10S473J
R 518		RS1/10S473J
R 519		RS1/10S473J
R 520		RS1/10S224J
R 521		RS1/10S473J
R 522		RS1/10S473J
R 523		RS1/10S472J
R 524		RS1/10S472J
R 525		RS1/10S222J
R 526		RS1/10S223J
R 603		RS1/10S473J
R 607		RS1/10S473J
R 608		RS1/10S221J
R 609		RS1/10S682J
R 610		RA4C221J
R 611		RS1/10S682J
R 613		RS1/10S682J
R 615		RS1/10S682J
R 617		RA4C681J
R 623		RS1/10S473J
R 624		RS1/10S102J
R 625		RS1/10S202J
R 626		RS1/10S473J
R 627		RS1/10S473J
R 628		RS1/10S473J
R 629		RS1/10S473J
R 630		RS1/10S222J
R 631		RS1/10S473J
R 633		RS1/10S473J
R 634		RS1/10S473J
R 636		RS1/10S0R0J
R 637		RS1/10S393J
R 651		RS1/10S681J
R 652		RS1/10S102J
R 653		RS1/10S102J
R 654		RS1/10S102J
R 662		RS1/10S473J
R 663		RS1/10S222J
R 668		RS1/10S103J
R 669		RS1/10S203J
R 670		RS1/10S222J
R 671		RS1/10S473J
R 672		RS1/10S222J
R 673		RS1/10S473J
R 674		RS1/10S473J
R 706		RS1/10S0R0J
R 802		RS1/8S222J
R 804		RS1/8S472J
R 806		RS1/8S472J
R 808		RS1/10S472J
R 809		RS1/10S472J
R 810		RS2PMF100J
R 811		RD1/4PU471J
R 812		RS1/10S103J
R 813		RS1/10S224J

=====Circuit Symbol & No.	Part Name=====	Part No.
R 814		RS1/10S222J
R 815		RD1/4PU102J
R 816		RS1/10S391J
R 817		RS1/10S752J
R 818		RS1/10S104J
R 819		RS2P300JL
R 851		RS1/8S331J
R 865		RS1/10S103J
R 866		RS1/10S102J
R 867		RS1/10S473J
R 868		RS1/10S473J
R 869		RS1/10S473J
R 911		RS1/10S332J
R 912		RS1/10S101J
R 921		RS1/10S103J
R 922		RS1/10S473J
R 923		RS1/10S103J
R 924		RS1/10S103J
R 925		RS1/10S473J
R 926		RS1/10S472J
R 931		RS1/10S103J
R 941		RS1/10S102J
R 942		RS1/10S822J
R 951		RD1/4PU221J
R 952		RD1/4PU301J
R 953		RS1/10S1R0J
R 954		RD1/4PU331J
R 955		RD1/4PU331J
R 956		RS1/8S472J
R 957		RD1/4PU102J
R 958		RS1/10S472J
R 959		RD1/4PU102J
R 960		RS1/10S472J
R 961		RS1/10S103J
R 962		RS1/10S473J
R 963		RS1/10S473J
R 971		RD1/4PU221J
R 972		RS1/10S221J
R 973		RS1/10S472J
R 974		RS1/8S122J
CAPACITORS		
C 133		CKSQYB473K25
C 134		CKSQYB473K25
C 135		CEJA4R7M35
C 136		CEJA4R7M35
C 137		CEJA4R7M35
C 138		CEJA4R7M35
C 151		CKSQYB104K16
C 152		CEAS470M10
C 153		CEJANP100M10
C 154		CEJANP100M10
C 155		CKSQYB822K50
C 156		CKSQYB822K50
C 157		CEJA1R0M50
C 158		CEJA1R0M50
C 159		CKSQYB183K25
C 160		CKSQYB183K25
C 161		CKSQYB102K50
C 162		CKSQYB102K50
C 163		CEJANP2R2M35
C 164		CEJANP2R2M35
C 165		CKSQYB333K25
C 166		CKSQYB333K25
C 167		CEJA220M6R3
C 168		CEJA2R2M50
C 169		CKSQYB104K16

=====Circuit Symbol & No.	Part Name=====	Part No.
C 201		CKSYB224K16
C 202		CKSYB224K16
C 203		CKSYB224K16
C 204		CKSYB224K16
C 205		CEHAR010M50
C 206	3300 μF/16V	CCH1163
C 207		CKSQYB103K50
C 208		CEHAR100M16
C 209		CEHAR010M50
C 210		CEHAR330M10
C 251		CEJA4R7M35
C 252		CEJA4R7M35
C 253		CEJA4R7M35
C 254		CEJA4R7M35
C 255		CKSQYB221K50
C 256		CKSQYB221K50
C 257		CKSQYB221K50
C 258		CKSQYB221K50
C 301		CEJA3R3M50
C 302		CEJA3R3M50
C 501		CKSQYB223K25
C 502		CKSQYB223K25
C 503		CKSQYB103K50
C 504		CKSQYB103K50
C 505		CKSQYB103K50
C 506		CKSQYB473K25
C 507		CKSQYB102K50
C 509		CKLSR473K16
C 510		CKSQYB103K50
C 512		CEJA100M16
C 513		CKSQYB103K50
C 514		CCSQCH101J50
C 515		CCSQCH101J50
C 516		CKSQYB103K50
C 518	4.7 μF/16V	CCH1250
C 519		CKSQYB103K50
C 520		CCSQCH150J50
C 521		CCSQCH150J50
C 522		CKSQYB223K25
C 603		CEJA100M16
C 604		CKSQYB103K50
C 605		CCSQCH101J50
C 606		CCSQCH101J50
C 607		CASA1R0M16
C 609		CCSQCH101J50
C 661		CCSQCH101J50
C 662		CEJA4R7M35
C 663		CKSQYB104K16
C 664		CKSQYB473K25
C 801		CKSYB104K16
C 802		CCSQCH101J50
C 803		CEHAR100M16
C 804		CKSQYB103K50
C 805		CEHAR100M16
C 806		CKSQYB103K50
C 807		CKSQYB333K25
C 808		CKSQYB333K25
C 858		CKSQYB473K25
C 901		CKSQYB103K50
C 911		CKSQYB103K50
C 912	0.22F/5.5V	CCL1037
C 913		CKSQYB472K50
C 914		CEHAQ102M16
C 915		CEAS470M10
C 921		CKSYB105K16

Circuit Symbol & No.	Part Name	Part No.
C 922		CKSYB102K50
C 931		CKSQYB473K25
C 941		CEJA2R2M50
C 951		CKSQYB103K50
C 952		CEHAQ101M16
C 953		CKSQYB103K50
C 954	330 μF/10V	CCH1181
C 971		CKSQYB473K25
C 972		CKSQYB102K50
C 973		CEAS101M10

A Unit Number : CWX2068(DEH-45DH)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 151	IC		SN761027DL
IC 201	IC		TDA7384A
IC 501	IC		LC72146M
IC 601	IC		PD4723A
IC 661	IC		PD4623B
IC 941	IC		S-80734ANDYI
Q 201	Transistor		DTC124EK
Q 252	Transistor		IMH3A
Q 253	Transistor		IMD2A
Q 301	Transistor		DTA124EK
Q 302	Transistor		IMH3A
Q 501	Transistor		2SC2412K
Q 502	Transistor		2SK208
Q 503	Transistor		2SC2412K
Q 661	Transistor		DTA124EK
Q 801	Transistor		2SA1037K
Q 802	Transistor		2SD1760F5
Q 803	Transistor		DTC114EK
Q 804	Transistor		DTA143EK
Q 805	Transistor		DTC114EK
Q 806	Transistor		2SC2412K
Q 807	Transistor		2SB1238
Q 808	Transistor		DTC143EK
Q 809	Transistor		2SD1864
Q 911	Transistor		2SD1760F5
Q 921	Transistor		IMX1
Q 922	Transistor		DTC114EK
Q 951	Transistor		2SD2396
Q 952	Transistor		2SB1243
Q 953	Transistor		DTC124EK
Q 954	Transistor		2SA1674
Q 955	Transistor		2SA1674
Q 956	Transistor		IMH1A
Q 957	Transistor		2SC2412K
Q 958	Transistor		DTC144EK
Q 971	Transistor		2SD2396
Q 972	Transistor		IMD2A
D 201	Diode		DAN202K
D 501	Diode		DAN202K
D 502	Diode		HZS3LL(B)
D 801	Diode		DA204K
D 802	Diode		DA204K
D 803	Diode		DA204K
D 804	Diode		MA3062(M)
D 805	Diode		HZS9L(B3)
D 806			HZS5LL(A)
D 901	Diode		ERA15-02VH
D 902	Diode		ERA15-02VH
D 911	Diode		ERA15-02VH
D 912	Diode		HZS6L(B1)

Circuit Symbol & No.	Part Name	Part No.
D 921	Diode	HZS7L(C3)
D 922	Diode	1SS133
D 923	Diode	HZS7L(A1)
D 931	Diode	ERA15-02VH
D 932	Diode	ERA15-02VH
D 941	Diode	DAN212K
D 951	Diode	HZS9L(B3)
D 952	Diode	HZS9L(A2)
D 953	Diode	1SS133
D 971	Diode	HZS9L(B1)
L 501	Ferri-Inductor	LAU2R2K
L 502	Ferri-Inductor	LAU220K
L 601	Ferri-Inductor	LAU2R2K
L 602	Inductor	LAU100K
L 661	Ferri-Inductor	LAU2R2K
L 801	Ferri-Inductor	LAU2R2K
L 802	Transformer	MTX9005
L 901	Choke Coil 600H	CTH1171
X 501	7.2MHz	CSS1334
X 601	Ceramic Resonator 4.194MHz	CSS1047
X 661	Resonator 8.380MHz	CSS1354
	FM/AM Tuner Unit	CWE1417

RESISTORS

R 133	RS1/10S162J
R 134	RS1/10S162J
R 151	RS1/10S272J
R 152	RS1/10S272J
R 153	RS1/10S151J
R 154	RS1/10S151J
R 201	RS1/10S103J
R 202	RS1/10S331J
R 204	RS1/10S103J
R 205	RS1/10S103J
R 253	RS1/10S471J
R 254	RS1/10S471J
R 257	RS1/10S223J
R 258	RS1/10S223J
R 301	RS1/10S471J
R 302	RS1/10S471J
R 303	RS1/10S104J
R 304	RS1/10S104J
R 501	RS1/10S102J
R 502	RS1/10S102J
R 503	RS1/10S102J
R 506	RS1/10S103J
R 508	RS1/10S472J
R 509	RS1/10S152J
R 510	RS1/10S102J
R 511	RS1/10S472J
R 512	RS1/10S103J
R 513	RS1/10S102J
R 514	RS1/10S0R0J
R 515	RS1/10S103J
R 516	RS1/10S222J
R 517	RS1/10S473J
R 518	RS1/10S473J
R 519	RS1/10S473J
R 520	RS1/10S224J
R 521	RS1/10S473J
R 522	RS1/10S473J
R 523	RS1/10S472J
R 524	RS1/10S472J
R 525	RS1/10S222J

Circuit Symbol & No.	Part Name	Part No.
R 526		RS1/10S223J
R 603		RS1/10S473J
R 607		RS1/10S473J
R 608		RS1/10S221J
R 609		RS1/10S682J
R 610		RA4C221J
R 611		RS1/10S682J
R 613		RS1/10S682J
R 615		RS1/10S682J
R 617		RA4C681J
R 623		RS1/10S473J
R 626		RS1/10S473J
R 627		RS1/10S473J
R 628		RS1/10S473J
R 629		RS1/10S473J
R 630		RS1/10S222J
R 631		RS1/10S473J
R 633		RS1/10S473J
R 635		RS1/10S473J
R 636		RS1/10S0R0J
R 637		RS1/10S393J
R 651		RS1/10S681J
R 652		RS1/10S102J
R 653		RS1/10S102J
R 654		RS1/10S102J
R 662		RS1/10S473J
R 663		RS1/10S222J
R 668		RS1/10S103J
R 669		RS1/10S203J
R 670		RS1/10S222J
R 671		RS1/10S473J
R 672		RS1/10S222J
R 673		RS1/10S473J
R 674		RS1/10S473J
R 706		RS1/10S0R0J
R 802		RS1/8S222J
R 804		RS1/8S472J
R 806		RS1/8S472J
R 808		RS1/10S472J
R 809		RS1/10S472J
R 810		RS2PMF100J
R 811		RD1/4PU471J
R 812		RS1/10S103J
R 813		RS1/10S224J
R 814		RS1/10S222J
R 815		RD1/4PU102J
R 816		RS1/10S391J
R 817		RS1/10S752J
R 818		RS1/10S104J
R 819		RS2P300JL
R 868		RS1/10S473J
R 911		RS1/10S332J
R 912		RS1/10S101J
R 921		RS1/10S103J
R 922		RS1/10S473J
R 923		RS1/10S103J
R 924		RS1/10S103J
R 925		RS1/10S473J
R 926		RS1/10S472J
R 931		RS1/10S103J
R 941		RS1/10S102J
R 942		RS1/10S822J
R 951		RD1/4PU221J
R 952		RD1/4PU301J
R 953		RS1/10S1R0J
R 954		RD1/4PU331J
R 955		RD1/4PU331J
R 956		RS1/8S472J
R 957		RD1/4PU102J
R 958		RS1/10S472J

Circuit Symbol & No.	Part Name	Part No.
R 959		RD1/4PU102J
R 960		RS1/10S472J
R 961		RS1/10S103J
R 962		RS1/10S473J
R 963		RS1/10S473J
R 971		RD1/4PU221J
R 972		RS1/10S221J
R 973		RS1/10S472J
R 974		RS1/8S122J

CAPACITORS

C 133		CKSQYB473K25
C 134		CKSQYB473K25
C 135		CEJA4R7M35
C 136		CEJA4R7M35
C 137		CEJA4R7M35
C 138		CEJA4R7M35
C 151		CKSQYB104K16
C 152		CEAS470M10
C 153		CEJANP100M10
C 154		CEJANP100M10
C 155		CKSQYB822K50
C 156		CKSQYB822K50
C 157		CEJA1R0M50
C 158		CEJA1R0M50
C 159		CKSQYB183K25
C 160		CKSQYB183K25
C 161		CKSQYB102K50
C 162		CKSQYB102K50
C 163		CEJANP2R2M35
C 164		CEJANP2R2M35
C 165		CKSQYB333K25
C 166		CKSQYB333K25
C 167		CEJA220M6R3
C 168		CEJA2R2M50
C 169		CKSQYB104K16
C 201		CKSYB224K16
C 202		CKSYB224K16
C 203		CKSYB224K16
C 204		CKSYB224K16
C 205		CEHAR010M50
C 206	3300 μF/16V	CCH1163
C 207		CKSQYB103K50
C 208		CEHAR100M16
C 209		CEHAR010M50
C 210		CEHAR330M10
C 253		CEJA4R7M35
C 254		CEJA4R7M35
C 257		CKSQYB221K50
C 258		CKSQYB221K50
C 301		CEJA3R3M50
C 302		CEJA3R3M50
C 501		CKSQYB223K25
C 502		CKSQYB223K25
C 503		CKSQYB103K50
C 504		CKSQYB103K50
C 505		CKSQYB103K50
C 506		CKSQYB473K25
C 507		CKSQYB102K50
C 509		CKLSR473K16
C 510		CKSQYB103K50
C 512		CEJA100M16
C 513		CKSQYB103K50
C 514		CCSQCH101J50
C 515		CCSQCH101J50
C 516		CKSQYB103K50

Circuit Symbol & No.	Part Name	Part No.
C 518	4.7 μF/16V	CCH1250
C 519		CKSQYB103K50
C 520		CCSQCH150J50
C 521		CCSQCH150J50
C 522		CKSQYB223K25
C 603		CEJA100M16
C 604		CKSQYB103K50
C 605		CCSQCH101J50
C 606		CCSQCH101J50
C 607		CASA1R0M16
C 609		CCSQCH101J50
C 661		CCSQCH101J50
C 662		CEJA4R7M35
C 663		CKSQYB104K16
C 664		CKSQYB473K25
C 801		CKSYB104K16
C 802		CCSQCH101J50
C 803		CEHAR100M16
C 804		CKSQYB103K50
C 805		CEHAR100M16
C 806		CKSQYB103K50
C 807		CKSQYB333K25
C 808		CKSQYB333K25
C 901		CKSQYB103K50
C 911		CKSQYB103K50
C 912	0.22F/5.5V	CCL1037
C 913		CKSQYB472K50
C 914		CEHAQ102M16
C 915		CEAS470M10
C 921		CKSYB105K16
C 922		CKSYB102K50
C 931		CKSQYB473K25
C 941		CEJA2R2M50
C 951		CKSQYB103K50
C 952		CEHAQ101M16
C 953		CKSQYB103K50
C 954	330 μF/10V	CCH1181
C 971		CKSQYB473K25
C 972		CKSQYB102K50
C 973		CEAS101M10

C Unit Number : CWX2091
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1901	IC	PD6197A
IC	1902		RS-140
D	1901	Diode	DA204K
D	1902	Diode	DA204K
D	1903	LED	CL220PGC
D	1904	LED	CL220PGC
D	1905	LED	CL220PGC
D	1906	LED	CL170PGCD
D	1907	LED	CL170PGCD
D	1908	LED	CL170PGCD
L	1901	Inductor	LCTB1R0K2125
X	1901		CSS1084
S	1901		CSG1085
S	1902		CSG1084
S	1903		CSG1085
S	1904		CSG1085
S	1905		CSG1085
S	1906		CSG1085
S	1907		CSG1085
S	1908		CSG1085
S	1909		CSG1061
S	1910		CSG1061
S	1911		CSG1084
S	1912		CSG1084
S	1913		CSG1084
S	1914		CSG1084
S	1915		CSG1084
S	1916		CSG1084
S	1917		CSG1085
S	1918		CSG1084
S	1919		CSG1084
S	1920		CSG1084
S	1921		CSG1086
		LCD	CAW1390
		EL	CEL1488

RESISTORS

R	1901		RS1/8S222J
R	1902		RS1/8S222J
R	1903		RS1/8S562J
R	1904		RS1/8S470J
R	1905		RS1/8S2R2J
R	1906		RS1/8S121J
R	1907		RS1/8S121J
R	1908		RS1/8S121J
R	1909		RS1/8S121J
R	1910		RS1/8S121J
R	1911		RS1/8S121J
R	1912		RS1/8S121J
R	1913		RS1/8S121J
R	1914		RS1/8S121J
R	1915		RS1/8S121J
R	1918		RS1/8S0R0J
R	1919		RS1/8S0R0J

CAPACITORS

C	1901	CKSQYB103K50
C	1902	CEV470M6R3
C	1903	CKSQYB104K16
C	1904	CKSQYB104K16
C	1905	CKSYB104K25
C	1906	CKSQYB104K16

E Unit Number : CWX1889
Unit Name : Control Unit

MISCELLANEOUS

IC	101	IC	UPC2572GS
IC	201	IC	UPD63702GF
IC	301	IC	XLA6997FP
IC	302	IC	XLA6285FP
IC	601	IC	TA2063F
IC	701	IC	PQ05TZ51
Q	101	Transistor	2SD1664
Q	102	Transistor	UMD2N
Q	601	Transistor	2SD1781K
Q	602	Transistor	2SD1781K
Q	603	Transistor	2SB709A
D	601	Diode	MA151WA
D	701	Diode	1SR154-400
D	702	Diode	1SR154-400
D	801		CL200IRX
D	802		CL200IRX
X	201	Ceramic Resonator 16.93MHz	CSS1363
S	801	Switch(Home)	CSN1028
S	802	Switch(Clamp)	CSN1028

Circuit Symbol & No.	Part Name	Part No.
RESISTORS		
R 101		RS1/8S100J
R 102		RS1/8S120J
R 103		RS1/16S102J
R 104		RS1/16S822J
R 105		RS1/16S682J
R 106		RS1/16S183J
R 107		RS1/16S822J
R 108		RS1/16S333J
R 109		RS1/16S683J
R 110		RS1/16S134J
R 111		RS1/16S273J
R 112		RS1/16S222J
R 113		RS1/16S103J
R 114		RS1/16S103J
R 115		RS1/16S102J
R 116		RS1/16S163J
R 117		RS1/16S163J
R 201		RS1/16S104J
R 202		RS1/16S473J
R 304		RS1/16S0R0J
R 501		RS1/16S0R0J
R 505		RS1/16S102J
R 507		RA4C102J
R 508		RA4C681J
R 510		RS1/10S0R0J
R 601		RS1/16S102J
R 602		RS1/16S102J
R 603		RS1/16S223J
R 604		RS1/16S223J
R 605		RS1/16S162J
R 606		RS1/16S162J
R 607		RS1/16S103J
R 801		RS1/8S751J
R 802		RS1/8S751J
CAPACITORS		
C 101		CEV101M6R3
C 102		CKSQYB104K16
C 103		CEV470M6R3
C 104		CKSYB334K16
C 105		CCSRCH330J50
C 106		CKSRYB103K25
C 107		CEV4R7M35
C 108		CKSQYB273K50
C 109		CCSRCH101J50
C 110		CKSQYB104K16
C 111		CKSRYB332K50
C 112		CKSQYB473K16
C 113		CKSRYB103K25
C 114		CKSRYB391K50
C 115		CCSRCH121J50
C 116		CKSRYB682K25
C 117		CKSRYB333K16
C 118		CKSYB334K16
C 119		CKSYB334K16
C 120		CKSYB334K16
C 121		CKSYB334K16
C 122		CKSQYB104K16
C 123		CKSRYB472K50
C 124		CKSQYB104K16
C 125		CCSRCH6R0D50
C 126		CKSRYB153K25
C 127		CCSRCH102J25
C 201		CKSYB334K16
C 202		CKSQYB104K16
C 203		CKSQYB104K16

Circuit Symbol & No.	Part Name	Part No.
C 303		CEV470M16
C 304		CKSRYB103K25
C 305		CKSRYB103K25
C 306		CKSRYB103K25
C 502		CKSRYB471K50
C 601		CEV101M6R3
C 602		CKSQYB104K16
C 603		CEV4R7M35
C 604		CEV4R7M35
C 605		CKSRYB152K50
C 606		CKSRYB152K50
C 607		CEV220M6R3
C 701	22 μF/6.3V	CCH1233
C 702		CKSYB334K16
C 703		CEV101M6R3
C 901		CCSRCH471J50
C 902		CCSRCH271J50
C 903		CCSRCH471J50
C 904		CCSRCH101J50

F Unit Number : CWM5291(DEH-59DH)
Unit Name : Detach Alarm Unit

MISCELLANEOUS

IC	851	IC	TPD1018F
IC	852	IC	TPD1018F
Q	851	Transistor	IMD2A
Q	852	Transistor	DTC123EK
Q	853	Transistor	DTC123EK
Q	854	Transistor	DTC123EK
D	858	Diode	ERA15-02VH
D	859	Diode	ERA15-02VH
D	860	Diode	ERA15-02VH
D	861	Diode	ERA15-02VH

RESISTORS

R 852		RS1/10S103J
R 853		RS1/10S103J
R 854		RS1/10S163J
R 856		RS1/10S163J
R 858		RS1/10S163J
R 860		RS1/10S103J
R 861		RS1/10S103J
R 862		RS1/8S102J
R 863		RS1/8S102J
R 864		RS1/8S102J

CAPACITORS

C 852		CKSQYB473K25
C 854		CKSQYB473K25
C 855		CKSQYB103K50
C 856		CKSQYB103K50
C 857		CKSQYB103K50

D Unit Number :
Unit Name : Detector PCB

Q	1	Photo-transistor	CPT-230S-X
Q	2	Photo-transistor	CPT-230S-X

Miscellaneous Parts List

M	1	Pickup Unit(SERVICE)	CXX1230
M	2	Motor Unit(Spindle)	CXA8912
M	3	CRG Motor Unit(Carriage)	CXA8986
		Load Motor Unit(Loading)	CXA8702

6. ADJUSTMENT

6.1 TUNER ADJUSTMENT

● Connection Diagram

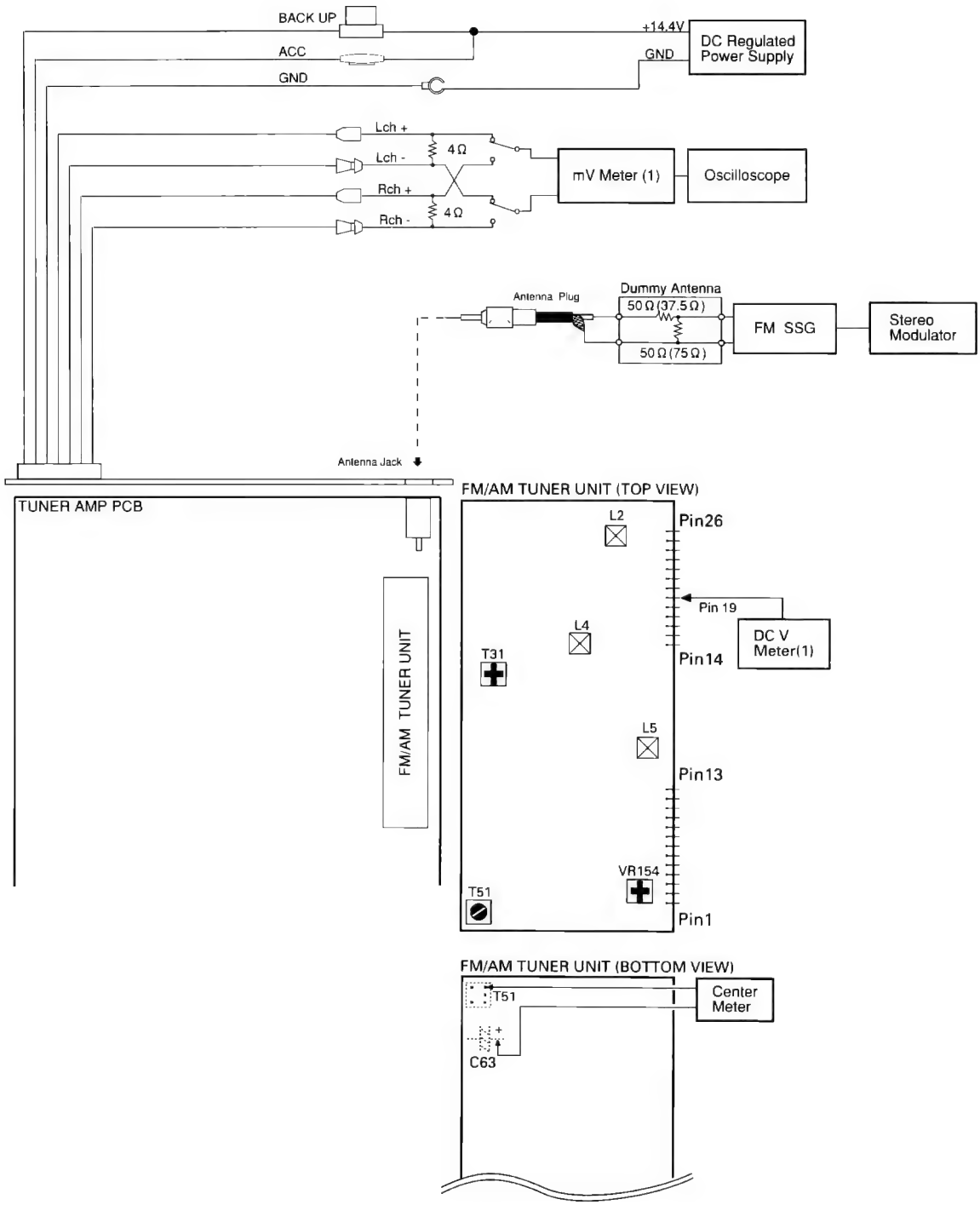


Fig. 25

FM ADJUSTMENT

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.) or 400Hz 100%(75kHz Dev.)
S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed	Adjustment	Adjustment Method
		Frequency(MHz)	Level(dBf)	Frequency(MHz)	Point	(Switch Position)
TUN Volt	1	•••••	•••••	107.9	L5	DC V Meter(1) : 6V
IF	2	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	3	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	4	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	5	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	6	98.1 S	40	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

6.2 CHECKING THE KEYBOARD UNIT

When checking the Keyboard unit and Tuner Amp PCB , set the unit as shown in the figure. Secure the Keyboard unit by using adhesive tape to prevent it from becoming unstable during the check.
Even without the CD mechanism module, the minimum necessary items, such as the EL check, can be checked.

In the Keyboard unit and Tuner Amp PCB, there are EL high-voltage sections with the description of "HIGH VOLTAGE". Therefore, special care should be taken when handling them to prevent electrical shock.

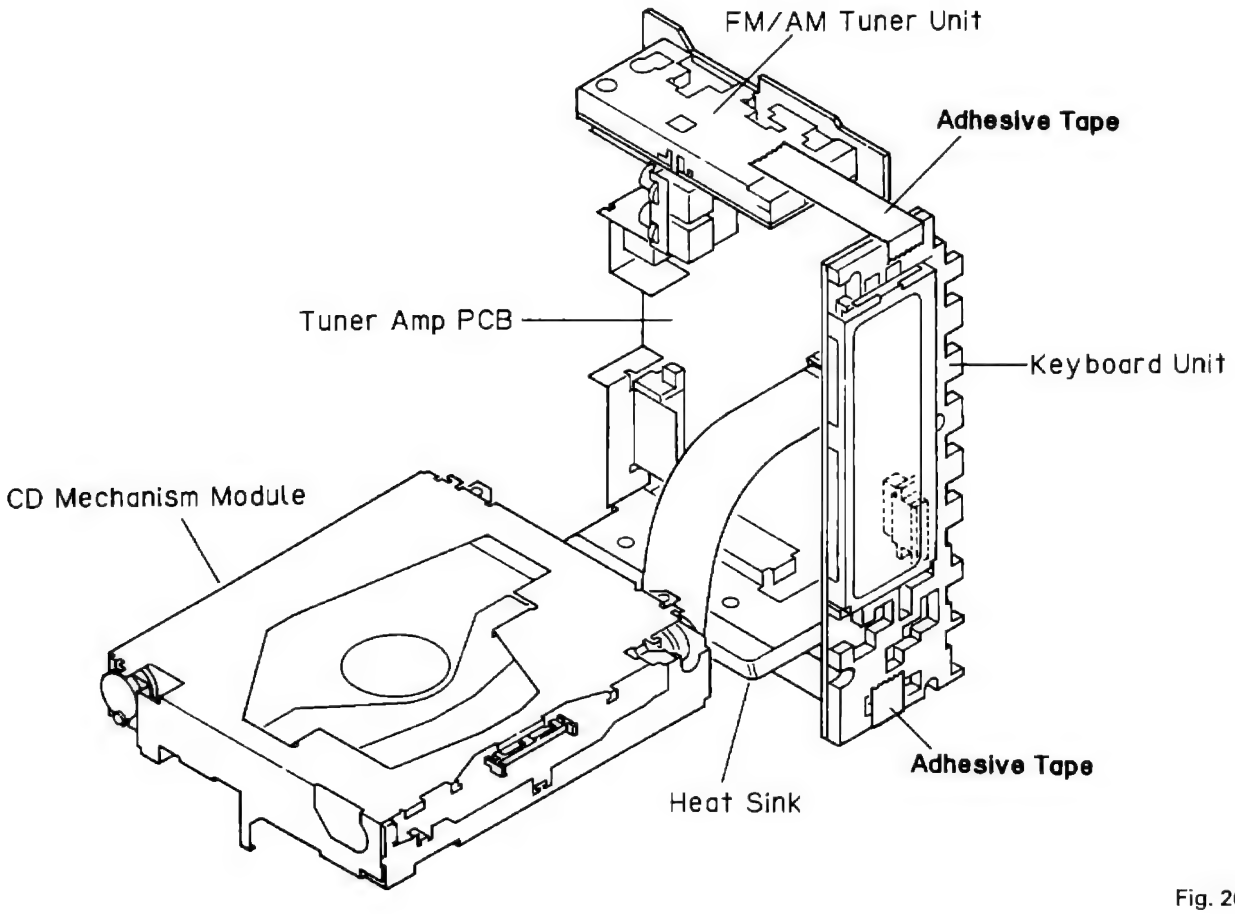


Fig. 26

6.3 CD ADJUSTMENT

1)Precautions

· This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.
If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

· Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

· Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

· Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

· Test mode starting procedure
Switch ACC, back-up ON while pressing the **4** and **6** keys together.

· Test mode cancellation
Switch ACC, back-up OFF.

· Disc detection during loading and eject operations is performed by means of a photo transistor in this unit.Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
*During PLAY, even if the eject button is pressed,the disc will not be ejected and the unit will remain in the PLAY mode.
*The unit will not load a disc.
When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

· When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.

· Turn power off when pressing the button ▷ or the button ◁ key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

· SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released.Tracking is closed the moment C-MOVE is released.

· JUMP MODE resets to SINGLE as soon as power is switched OFF.

6.4 CHECKING THE GRATING

● Checking the Grating After Changing the Pickup Unit

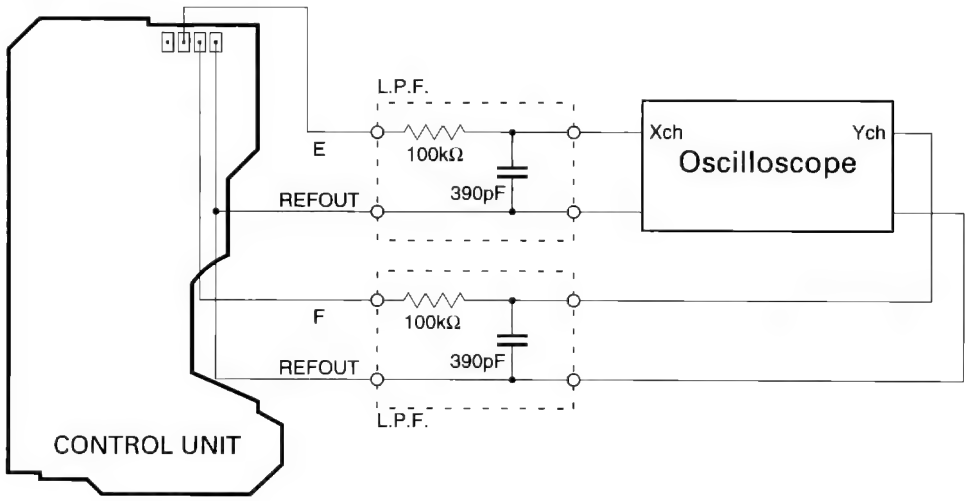
·**Note :**
Unlike previous CD mechanism modules the grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

·**Purpose :**
To check that the grating is within an acceptable range.

·**Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or track searching taking a long time, may appear.

·**Method :**

·Measuring Equipment	·Oscilloscope, Two L.P.F.
·Measuring Points	·E, F, REFOUT
·Disc	·ABEX TCD-784
·Mode	·TEST MODE



·**Checking Procedure**

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the **TR+** and **TR-** buttons, move the PU unit to the innermost track.
3. Press key **9** to close focus, the display should read "91". Press key **8** to implement the tracking balance adjustment the display should now read "81". Press key **9** 4 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

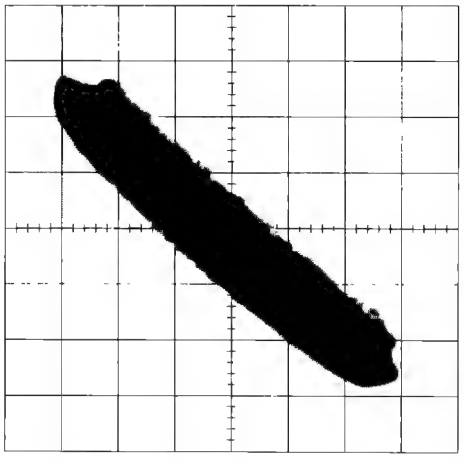
·**Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

·**Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

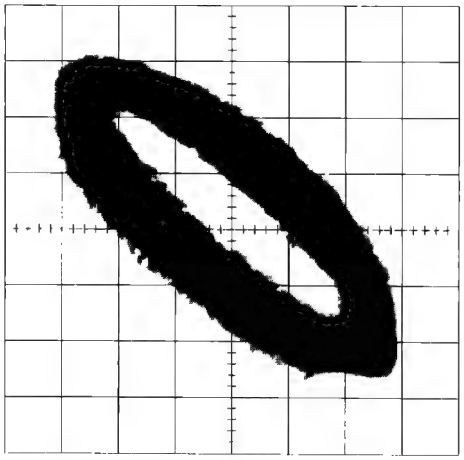
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

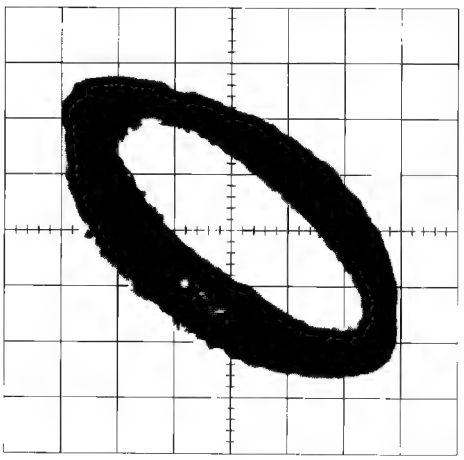
0°



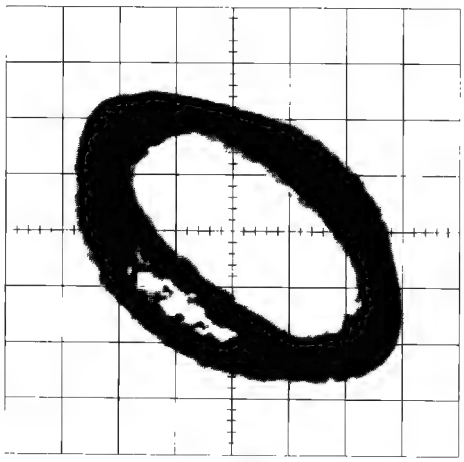
30°



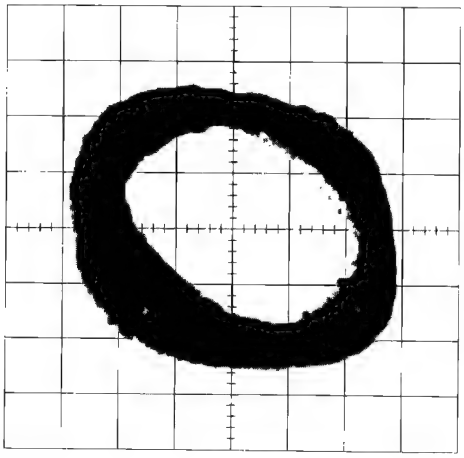
45°



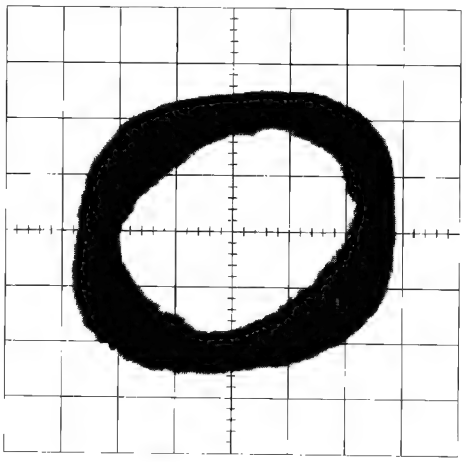
60°



75°

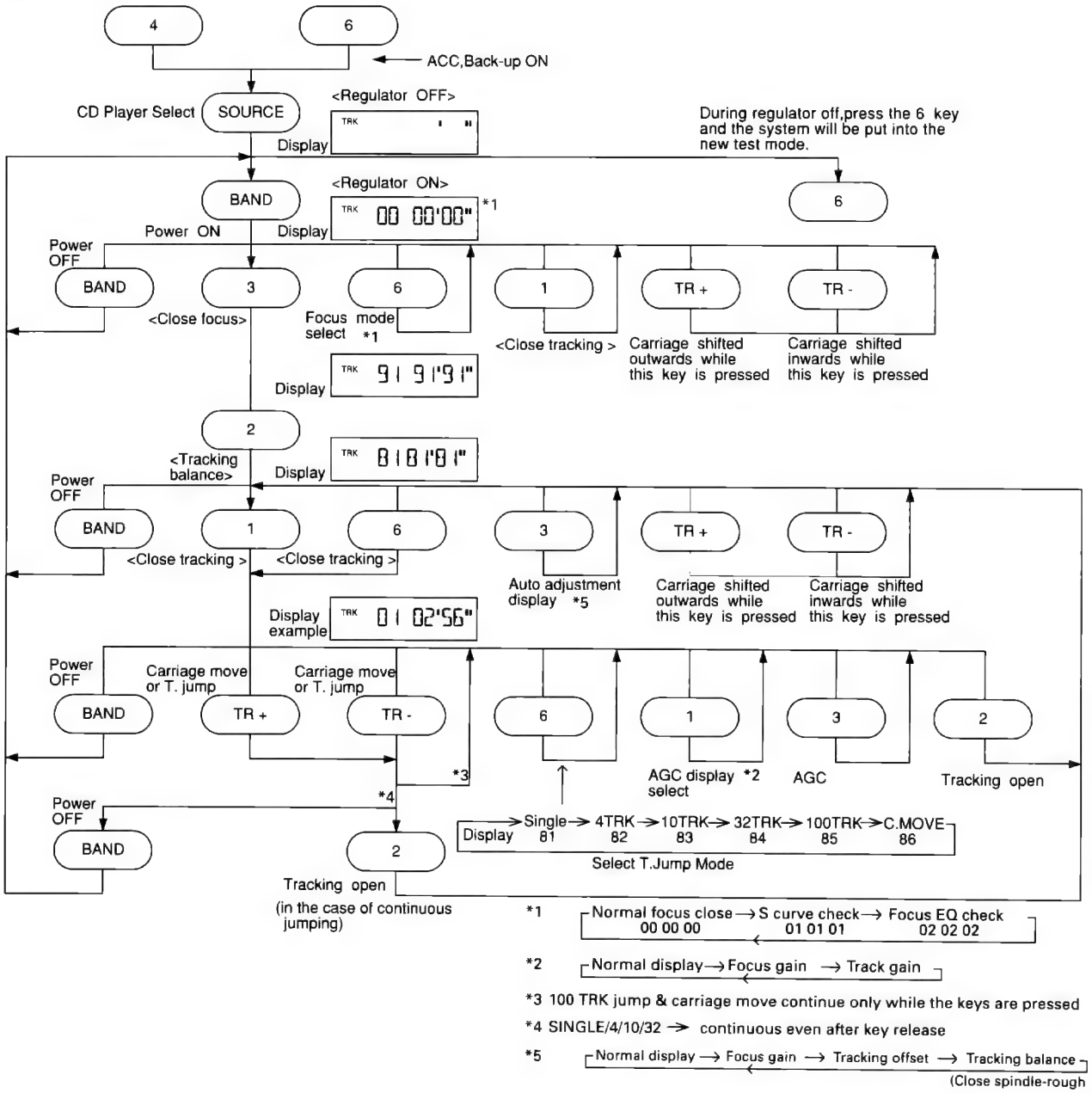


90°



6.5 TEST MODE

● Flow Chart



7. GENERAL INFORMATION

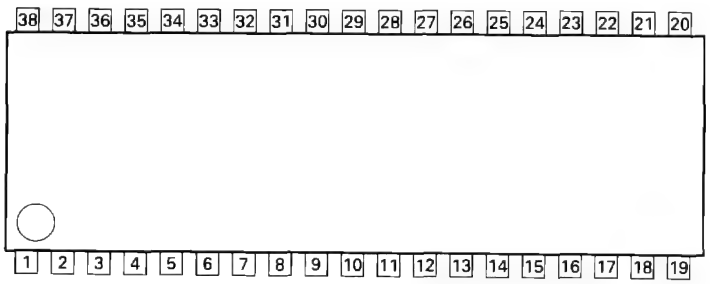
7.1 PARTS

7.1.1 IC

● **Pin Functions (UPC2572GS)**

Pin No.	Pin Name	I/O	Function and Operation
1	EFM-IN	I	EFM comparator input
2	AGC-OUT	O	AGC amplifier output
3	C. AGC		Connects AGC peak detection condenser
4	RF-IN	I	RF signal DC component cut input
5	RF-OUT	O	RF amplifier output
6	RF-	I	RF amplifier inverted input
7	C1, 3T		Connects RF3T component detection condenser
8	C2, 3T		Connects RF3T component detection condenser
9	Vcc		Power supply
10	A	I	A signal input
11	C	I	C signal input
12	B	I	B signal input
13	D	I	D signal input
14	F	I	F signal input
15	E	I	E signal input
16	PD	I	APC amplifier input
17	LD	O	APC amplifier output
18	LDON	I	Laser diode ON/OFF input
19	VREF-OUT	O	Reference voltage output
20	VREF-IN	I	Reference voltage input
21	DET-OUT	O	Vibration detection circuit output
22	DET-IN	I	Vibration detection circuit input
23	TE-OUT2	O	Tracking error amplifier output (fourfold gain)
24	TE-OUT1	O	Tracking error amplifier output (singlefold gain)
25	TE-	I	Tracking error amplifier inverted input
26	GND		GND
27	FE-	I	Focus error amplifier inverted input
28	FE-OUT	O	Focus error amplifier output
29	C.FE	I	Focus error signal DC component cut input
30	3T-OUT	O	RF3T component output
31	MIRR	O	MIRR signal output
32	RFOK	O	RFOK signal output
33	DEFECT	O	DEFECT signal output
34	C. DEF		Connects DEFECT signal detection condenser
35	EFM-OUT	O	EFM comparator output
36	ASY	I	EFM comparator level input
37	TE-BAL	I	Tracking balance control
38	FE-BAL	I	Focus balance control

UPC2572GS

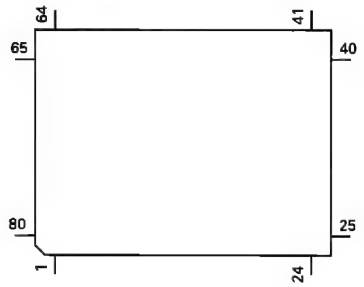


● **Pin Functions (UPD63702GF)**

Pin No.	Pin Name	I/O	Function and Operation
1	D.VDD		Supplies current of positive voltage to the logic circuits
2	$\overline{RST}$	I	System reset input pin
3	AO	I	Microcomputer interface AO="L": $\overline{STB}$ active and set to address register AO="H": $\overline{STB}$ active and set to parameter
4	$\overline{STB}$	I	Signal to latch serial data within the LSI
5	$\overline{SCK}$	I	Clock input pin to input and output serial data
6	SO	O	Outputs serial data and status signal
7	SI	I	Serial data input pin
8	D.GND		Logic circuit GND
9	X.GND		Crystal oscillation circuit GND
10	XTAL	I	Crystal oscillator connection pin
11	$\overline{XTAL}$	O	Crystal oscillator connection pin
12	X.VDD		Supplies current of positive voltage to the crystal oscillation circuit
13	DA.VDD		Supplies current of positive voltage to the D/A converter
14	R+	O	Right channel analog audio data output pin
15	R-	O	Right channel analog audio data output pin
16,17	DA.GND		D/A converter GND
18	L-	O	Left channel analog audio data output pin
19	L+	O	Left channel analog audio data output pin
20	DA.VDD		Supplies current of positive voltage to the D/A converter
21	D.VDD		Supplies current of positive voltage to logic circuit
22	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
23	WDCK	O	Pin to output double the frequency of LRCK
24	C16M	O	Pin to output the clock
25	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code
26	DIN	I	Input pin for serial audio data
27	DOUT	O	Output pin for the serial audio data
28	SCKO	O	Output pin for the clock for the serial audio data
29	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT. Frequency is 44.1kHz at 50% duty at normal regeneration
30	TX	O	Output pin for the digital audio interface data
31	CTLV	I	Oscillation control pin for high-frequency clock generation VCO used for the digital PLL upon regeneration at fast speed of 2- or 4-fold
32	POUT	O	Output point for phase comparison
33	D.GND		GND for the logic circuit
34	VCO	I	Input pin for the inverter
35	$\overline{VCO}$	O	Output pin for the inverter
36	D.VDD		Supplies current of positive voltage to the logic circuit
37	PLCK	O	Pin for monitoring the bit clock
38	LOCK	O	Indicates "H" when the synchronized pattern detection signal matches the frame counter output at the EFM recovery modulation, and "L" when they don't match
39	WFCK	O	Minute-cycle signal for the bit clock, the signal indicates the cycle of 1 frame (approx. 7.35kHz)
40	RFCK	O	Minute-cycle signal for the clock, the signal indicates cycle of 1 frame (approx. 7.35kHz)
41	D.GND		GND for the logic circuit
42,43	TEST0,1	I	Test pins
44,45	TM2, TM4	I	Pins for controlling regeneration at fast speed of 2- or 4-fold
46-49	T4-T7	I	Test pins
50,51	C1D1, C1D2	O	Output pin for indicating the C1 error correction results
52-54	C2D1-C2D3	O	Output pin for indicating the C2 error correction results
55	D.VDD		Supplies current of positive voltage to the logic circuit
56	SFSY	O	Outputs 1 word of the subcode. Generally, 1 cycle is approx 136 micro seconds
57	SBSY	O	The signal indicates the beginning of the subcode block. The SFSY signal is output at high level every 98 times
58	SBSO	O	Output pin for the subcode data

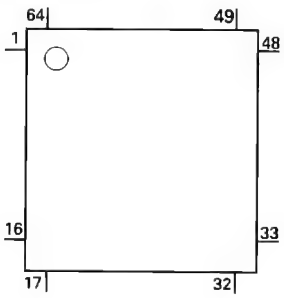
Pin No.	Pin Name	I/O	Function and Operation
59	SBCK	I	Input pin for the clock signal for read-out of the subcode data
60	A.GND		GND for the analog circuit
61	MD	O	Output pin for the spindle drive
62	SD	O	Output pin for the sled drive
63	TD	O	Output pin for the tracking drive
64	FD	O	Output pin for the focus drive
65	FBAL	O	Output pin for the focus balance control
66	TBAL	O	Output pin for the tracking balance control
67	A.VDD		Supplies current of positive voltage to the analog circuit
68	TBC	I	Switches coefficient banks for the tracking filter
69	EFM	I	Input pin for the EFM signal
70	HOLD	I	Input pin for the hold control signal
71	RFOK	I	Input pin for the RFOK signal
72	MIRR	I	Input pin for the MIRR signal
73	A.GND		GND for the analog circuit
74	HOME	I	Home position detector input
75	VR1	I	The signal input through these pins is digitized to 8-bit by the A/D converter, which by operation of the assigned register, can be read into the microcomputer
76	FE	I	Inputs a focus-error signal from the RF amplifier
77	TE	I	Inputs a tracking-error signal from the RF amplifier
78	TEC	I	Input pin for the tracking comparator
79	REFOUT	O	Output point for midpoint potential for the A/D converter for the LSI portion
80	A.VDD		Supplies current of accurate voltage to the analog circuit

*UPD63702GF



IC's marked by are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

*PD4623B



● **Pin Functions (PD4623B)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	NC			Not used
2	$\overline{\text{XRST}}$	O	C	CD LSI reset output
3,4	NC			Not used
5	DCE	O	C	Chip enable output
6	$\overline{\text{CRST}}$	O	C	IP-BUS reset output
7	$\overline{\text{HOME}}$			Connect to VDD
8	$\overline{\text{CLAMP}}$	I		Disc clamp input
9	VSS			GND
10	NC			Not used
11	CDEJET	O	C	Load motor eject control output
12	CDLOAD	O	C	LOAD motor loading control output
13	CONT	O	C	Servo driver power supply control
14	NC			Not used
15	CDMUTE	O	C	CD mute control output
16	DEEM			Not used
17	$\overline{\text{ADENA}}$	O	C	A/D reference voltage control output
18-23	NC			Not used
24	VSS			GND
25	DSET			Not used
26	BMUTE			Not used
27-30	NC			Not used
31	$\overline{\text{BRXEN}}$	I/O	C	Reception enable input/output
32	$\overline{\text{BSRQ}}$	O	C	P-BUS serial pole request input
33	VDCONT	O	C	VD power control outpur
34	CD5VON	O	C	CD +5V power control output
35	$\overline{\text{RESET}}$	I		Reset input
36	TXARI	I		VDD
37	$\overline{\text{CSENS}}$	I		Flap close sense input
38	$\overline{\text{BRST}}$	I		P–BUS reset input
39	CMPARI	I		GND
40	VDD			Power supply
41	X2			Crystal oscillator connection pin
42	X1	I		Crystal oscillator connection pin
43	IC			Connect to GND
44	NC			Not used
45	$\overline{\text{TESTIN}}$	I		Test program start input
46	AVSS	I		A/D GND
47	TEMP	I		Temperature sense input
48	VDSENS	I		VD short detection input
49	EJTSNS			Disc EJECT position detect
50	DSCSNS	I		Disc detect
51	NC			Not used
52	FOK	I		FOK signal input
53	MIRR	I		Mirror detection input
54	LOCK	I		Spindle lock detector input
55	AVDD			Power supply
56	AVREF	I		A/D converter reference voltage
57	XSI	I		Serial data input
58	XSO	O	C	Serial data output
59	XSCK	O	C	Serial clock output
60	$\overline{\text{XSTB}}$	O	C	CD LSI strobe output
61	XA0	O		Control signal distinguishing data from microcomputer
62	NC			Not used
63	BDATA	I/O	C	P–BUS serial data input/output
64	$\overline{\text{BSCK}}$	I/O	C	P-BUS serial clock input/output

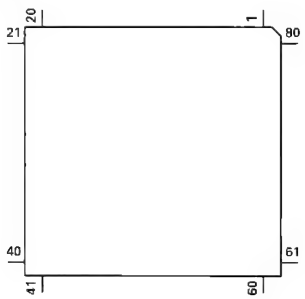
Format	Meaning
C	C MOS

● **Pin Functions (PD4723A)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	$\overline{\text{RIDRST}}$	O	C	RBDS/IDLOGIC reset output
2	RIDSEL	O	C	RBDS/IDLOGIC select output
3	NC			Not used
4	AVSS			A/D converter ground potential
5	VCAOUT	O		Sub woofer volume control
6	NC			Not used
7	AVREF	I		D/A converter reference voltage
8	KYDT	I		Communication data input
9	DPDT	O	C	Communication data output
10	$\overline{\text{SWVDD}}$	O	C	Power supply output
11	RIDDI			RBDS/IDLOGIC communication data
12	RIDDO	O	C	RBDS/IDLOGIC communication data output
13	$\overline{\text{RIDCK}}$	O	C	RBDS/IDLOGIC communication clock output
14	$\overline{\text{BRST}}$	O	C	P-BUS reset output
15	$\overline{\text{BRXEN}}$	I/O	C	P-BUS enable input/output
16	$\overline{\text{BSRQ}}$	I		P-BUS serial pole request input
17	BSIO	I/O	C	P-BUS serial data input/output
18	$\overline{\text{BSCK}}$	I/O	C	P-BUS serial clock input/output
19	VST	O	C	Strobe pulse output for electronic volume
20	VDT	O	C	Data output for electronic volume
21	VCK	O	C	Clock output for electronic volume
22	DRELAY	O	C	External relay output
23	DRSYS	O	C	Door system select output
24	STOUT	O	C	Starter cut output
25,26	NC			Not used
27	TUNPCK	O	C	PLL IC clock
28	TUNPDO	O	C	PLL IC data output
29	TUNPCE	O	C	PLL IC chip enable
30	TUNPDI	I		PLL IC data input
31	DRSENS			Door open/close sense
32	DLSENS			Door lock sense
33	VSS			GND
34	MUTE	O	C	Mute output
35	FIEOUT	O	C	FIE ON/OFF control output
36	SUBW0	O	N	Sub woofer control 0
37	SUBW1	O	N	Sub woofer control 1
38	$\overline{\text{DLED}}$	O	N	Alarm LED output
39	$\overline{\text{TMUTE}}$	O	N	Tuner mute output
40	$\overline{\text{BMUTE}}$	O	C	Bus mute output
41	ASENBO	O	C	Slave power supply control output
42	ILMPW	O	C	Illumination power supply control output
43	FM	O	C	FM power control output
44	AM	O	C	AM power control output
45	PEE	O	C	Beep tone output
46	TUNPW	O	C	Tuner power control output
47	SYSPW	O	C	System power control output
48	CDPW	O	C	CD power control
49	PCL	O	C	Clock adjustment output
50	LCDPW	O	C	LCD back light power supply control output
51	DIMMER	O	C	Dimmer output
52	SD	I		FM SD input
53	$\overline{\text{ST}}$	I		FM stereo input
54	$\overline{\text{TSENS}}$	I		Illumination sense input
55	NC			Not used
56	TX	O	C	IP BUS data output
57	RX	I		IP BUS data input
58	IPPW	O	C	Power supply control output for IP BUS interface IC
59	NC			Not used

Pin No.	Pin Name	I/O	Format	Function and Operation
60	$\overline{\text{RESET}}$	I		Reset input
61	RIDRDY	I		Ready input
62	$\overline{\text{BSENS}}$	I		Back up power sense input
63	$\overline{\text{ASENS}}$	I		ACC power sense input
64	$\overline{\text{DSENS}}$	I		Grille detach sense
65	$\overline{\text{MOSENS}}$	I		Sensor input
66	NC			Not used
67	CLKIN	I	C	Clock input
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1			Crystal oscillator connection pin
71	IC			GND
72	XT2			Not used
73	TESTIN	I	C	Test program mode input
74	AVDD			A/D converter power supply
75	AVREF0			A/D converter standard voltage input
76	SL	I		Signal level input
77	SEL0	I		Model select pin
78,79	NC			Not used
80	ADPW	O	C	Control output for analog input reference power

*PD4723A



Format	Meaning
C	C MOS
N	Nch open drain

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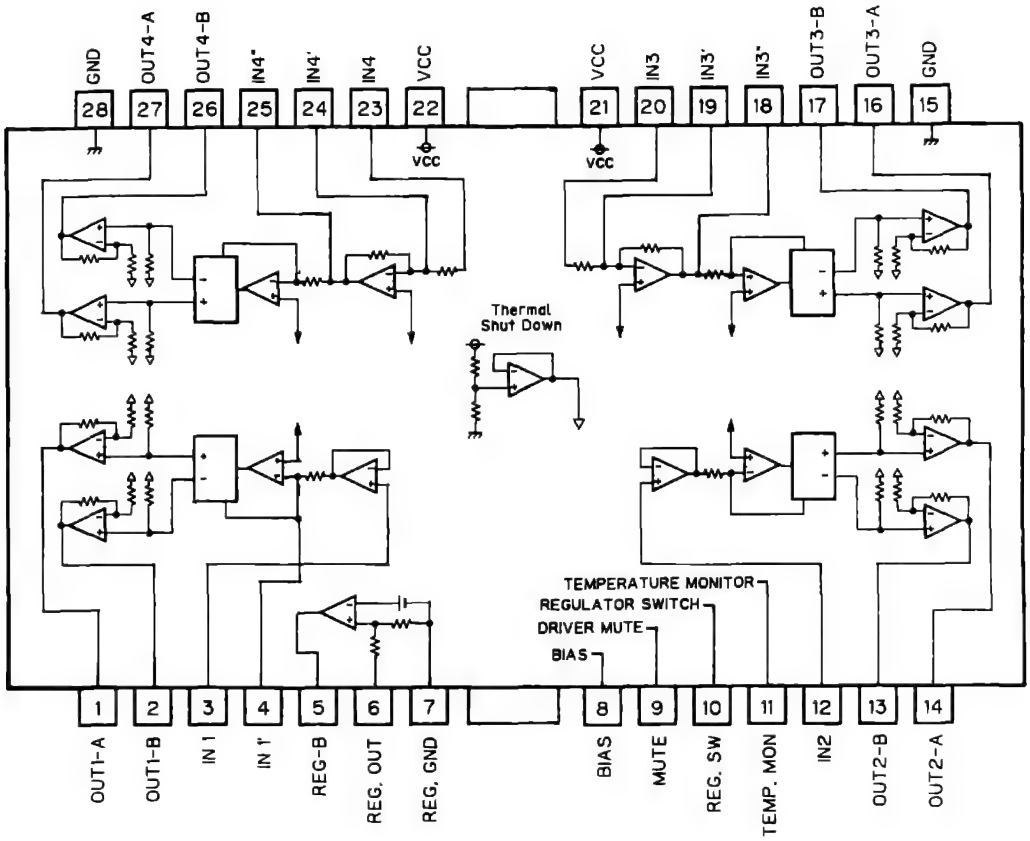

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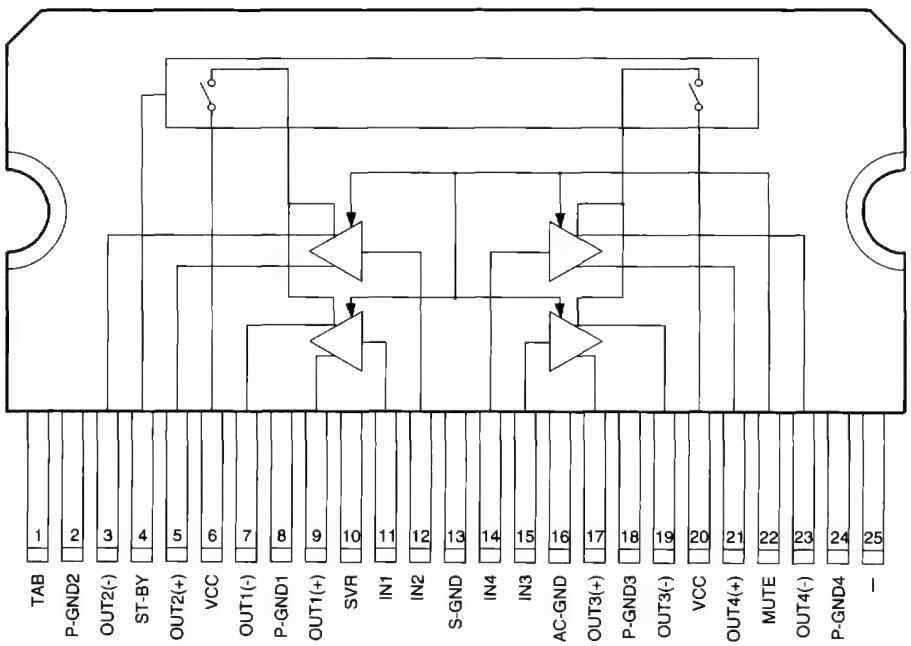

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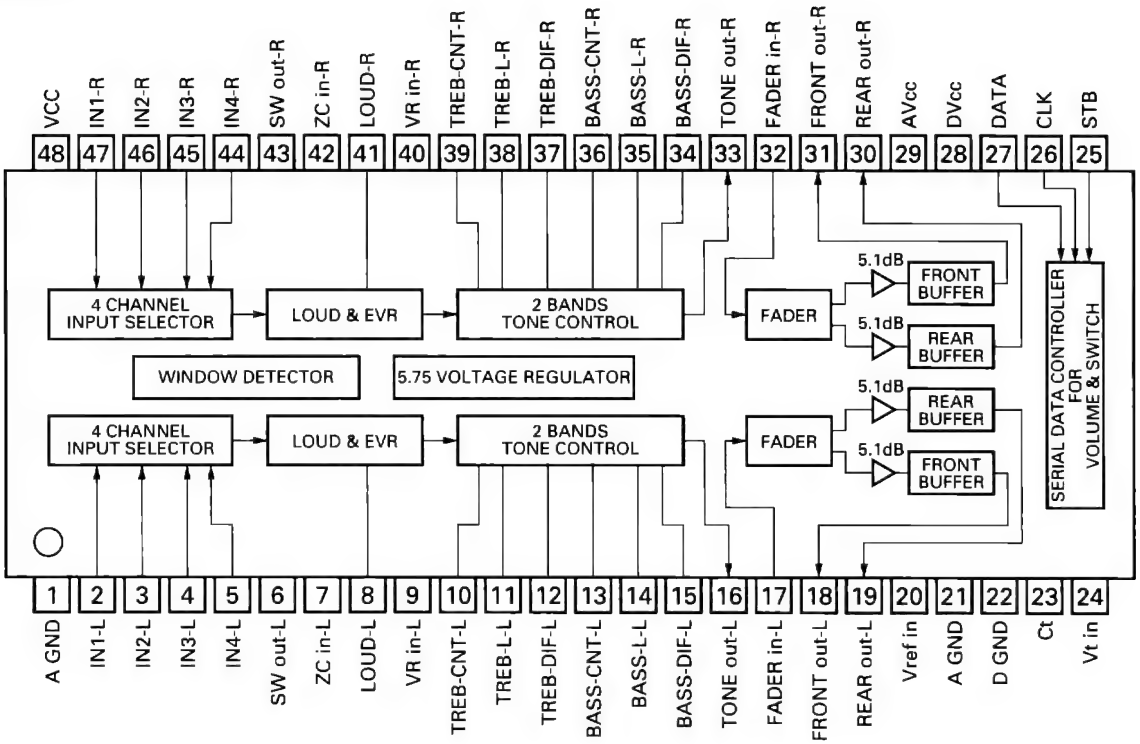

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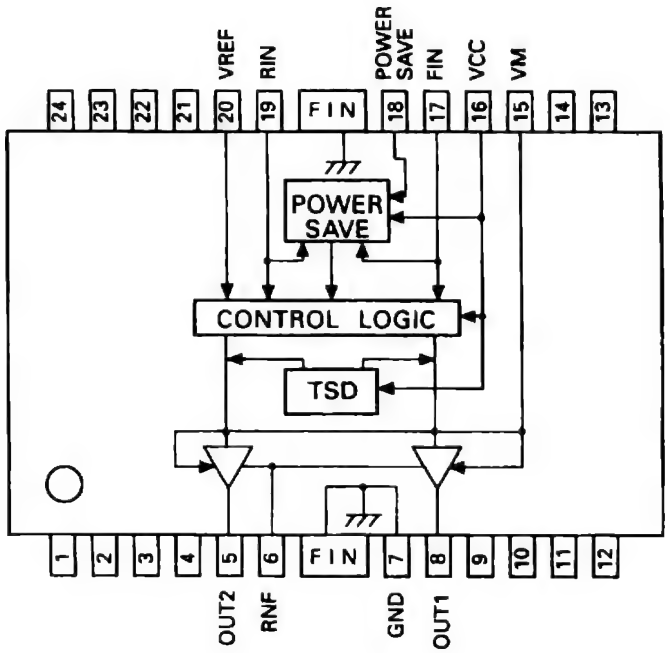
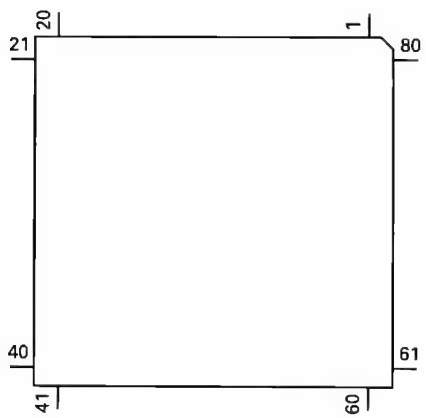


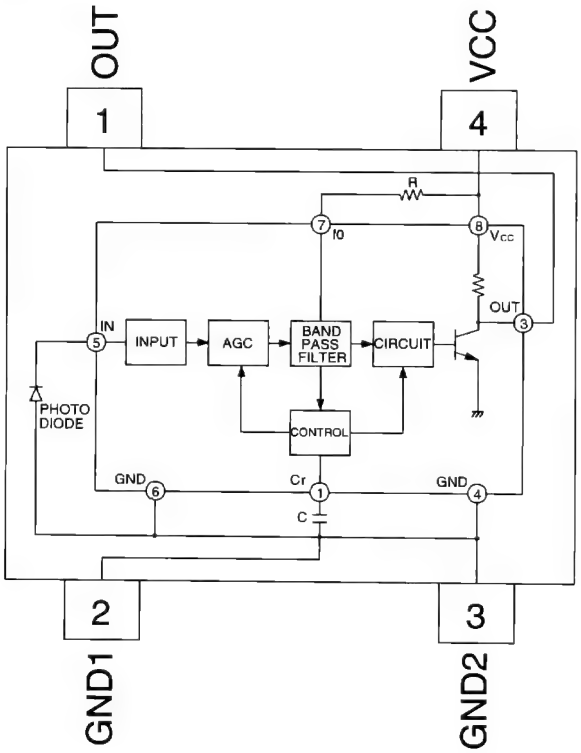
● **Pin Functions (PD6197A)**

Pin No.	Pin Name	I/O	Function and Operation
1	VSS		GND
2	X1		Crystal oscillator connection pin
3	X0		Crystal oscillator connection pin
4	NC		Not used
5,6	MOD1,0	I	Connect to GND
7	NC		Not used
8	KYDT	O	Display/key data output
9	DPDT	I	Display/key data input
10	REMIN	I	Remote control pulse input
11,12	NC		Not used
13-16	$\overline{KD4}$-$\overline{KD1}$	I	Key data input
17-21	$\overline{KS6}$-$\overline{KS2}$	O	Key strobe output
22	NC		Not used
23	VDD		VDD
24-73	SEG0-49	O	LCD segment output
74-77	COM3-0	O	LCD common output
78	VLCD	I	LCD voltage input
79,80	V2,V1		Power supply terminal

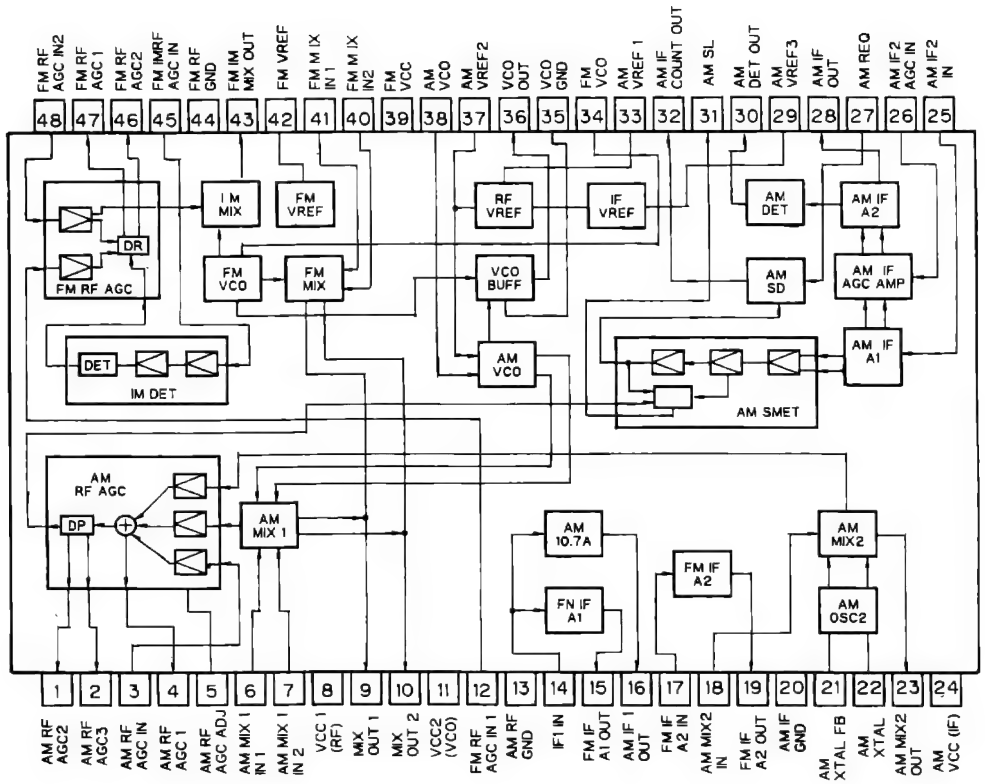
*PD6197A



RS-140



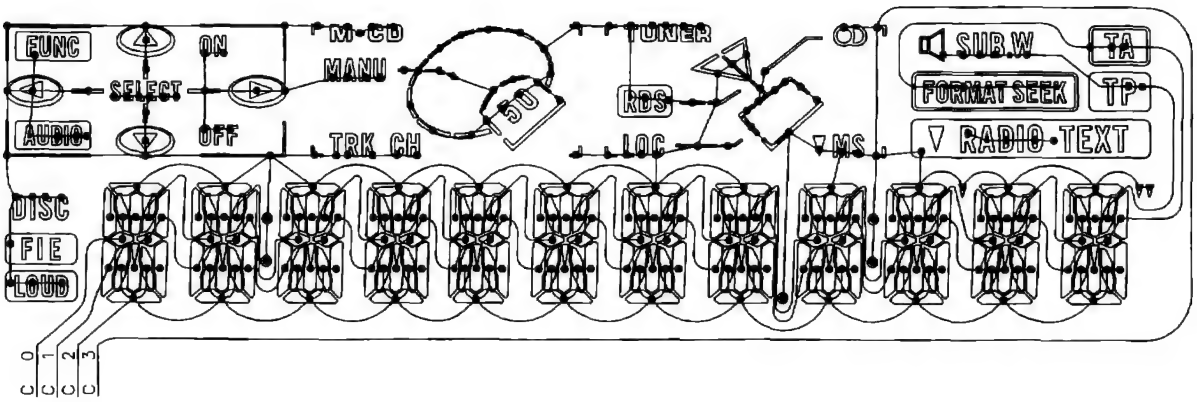
PA4023B


FM RF AGC IN2
FM RF AGC 1
FM RF AGC2
FM IMRF AGC IN
FM RF GND
FM IM MIX OUT
FM VREF
FM M IX IN 1
FM M IX IN2
FM VCC
AM VCO
AM VREF2
VCO OUT
VCO GND
FM VCO
AM VREF 1
AM IF COUNT OUT
AM SL
AM DET OUT
AM VREF3
AM IF OUT
AM REQ
AM IF2 AGC IN
AM IF2 IN
48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25
I M MIX
FM VREF
RF VREF
IF VREF
AM DET
AM IF A2
DR
FM RF AGC
FM VCO
FM MIX
VCO BUFF
AM SD
AM IF AGC AMP
DET
IM DET
AM VCO
AM IF A1
AM SMET
AM RF AGC
DP
AM MIX 1
AM 10.7A
FM IF A2
AM MIX2
FN IF A1
AM OSC2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
AM RF AGC2
AM RF AGC3
AM RF AGC IN
AM RF AGC 1
AM RF AGC ADJ
AM MIX 1 IN 1
AM MIX 1 IN 2
VCC 1 (RF)
MIX OUT 1
MIX OUT 2
VCC2 (VCO)
FM RF AGC IN 1
AM RF GND
IF1 IN
FM IF A1 OUT
AM IF 1 OUT
FM IF A2 IN
AM MIX2 IN
FM IF A2 OUT
AM IF GND
AM XTAL FB
AM XTAL
AM MIX2 OUT
AM VCC (IF)

7.1.2 DISPLAY

● **CAW1390**

COMMON



SEGMENT

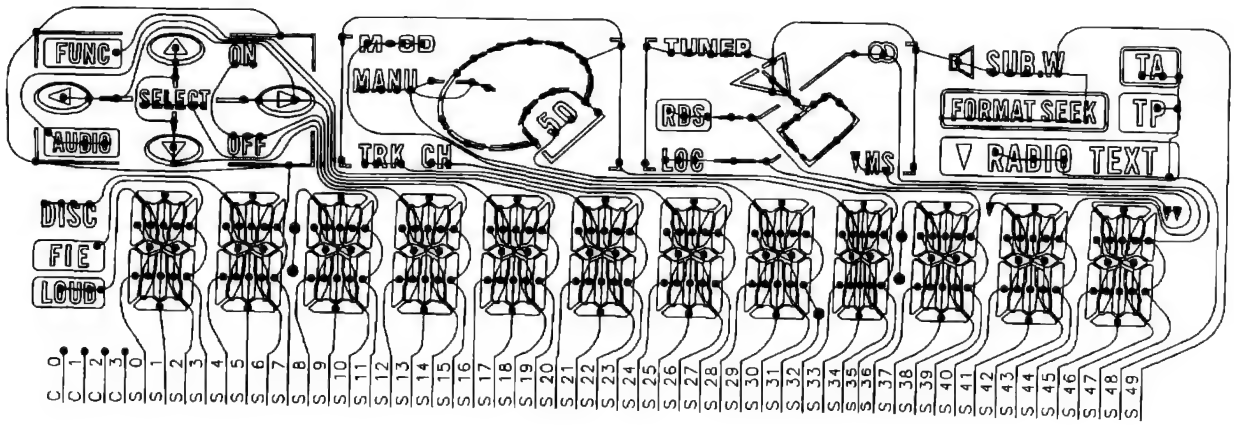


Fig. 27

7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● Removing the Case

1.Remove the three screws A , and then remove the case.

● Removing the Panel Assy

1.Remove the three screws B.

2.Disconnect the five stoppers C , and then remove the panel assy.

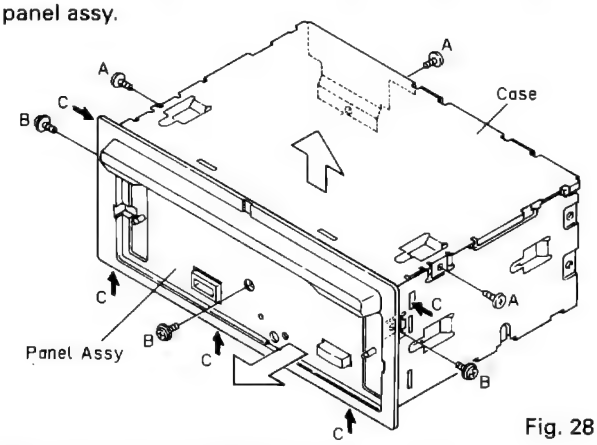


Fig. 28

● Removing the CD Mechanism Module

1.Remove the four screws D.

2.Disconnect the connector indicated by arrow.

3.Remove the CD Mechanism Module.

● Removing the Bracket

1.Remove the four screws E , and then remove the bracket.

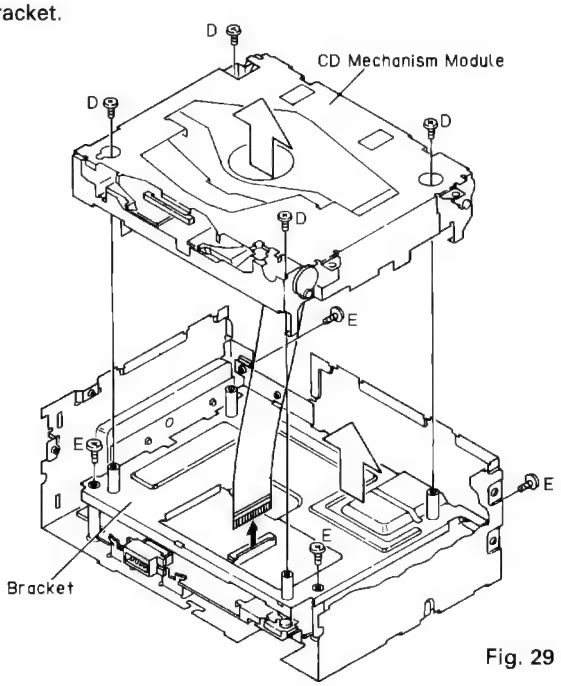


Fig. 29

● Removing the Tuner Amp PCB

1.Remove the six screws.

2.Stretch the four claws , and then remove the tuner amp PCB.

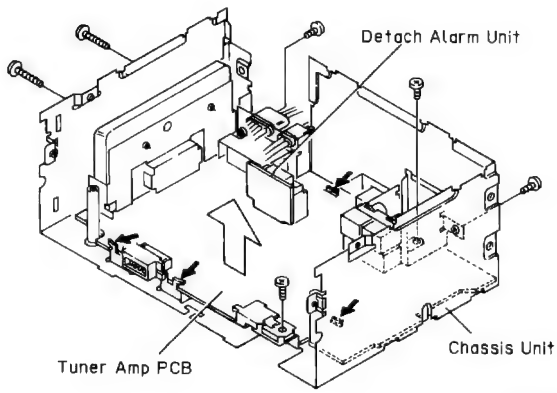


Fig. 30

7.2.2 TEST MODE

● Error Number Indication

If the CD should fail to operate or if an error has taken place during operation the player will enter into the error mode, and the cause of the error will be numerically indicated.

This is aimed at assisting in analysis or repair.

(1) Examples of Display

·ERROR- XX

(2) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed →Defects, disc upside-down, severe vibration
12	ELECTRIC	Spindle lock failure Subcode failure	Spindle failed to lock or subcode unreadable →Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed →Defects, disc upside-down, severe vibration
19	ELECTRIC	Set up failure	Tracking error waveform is too unbalanced (>50%) or level is too small →The P.U.unit or tracking error circuitry is N.G.
30	ELECTRIC	Search time out	Failed to reach target address →Carriage/tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal

● New Test Mode(aging operation and setup analysis)

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disk number)

During the setup, the CD software operation status (internal RAM and C-point)is displayed.

(1) How to enter NEW TEST Mode

See the test mode flow chart Page 57.

(2) Relations of keys between TEST and NEW TEST Modes

Keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Occurred, Protection Activated
BAND	Regulator ON	Regulator OFF	—	Time of occurrence / cause of error select
>	—	FWD-Kick	TRACK UP / FF	—
<	—	REV-Kick	TRACK DOWN /REV	—
1	—	Tracking close	SCAN	—
2	—	Tracking open	REPEAT	—
3	—	Focus close	RANDOM	—
6	To New Test Mode	Focus Mode Select	AUTO/MANU	—

Operations,such as EJECT, CD ON/OFF, etc. are performed normally

(3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause	Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus	Scratch, Stain, Vibration, Servo defect, etc...
41	ELECTRIC	PLAY	LOCK=L 100ms	Spindle unlock	
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Failed to read subcode	
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated	

(4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving inwards	10-second time out, Home switch failed
03	Carriage moving outwards	10-second time out, Home switch failed
05	Carriage moving outwards	None
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closure (XSI=L)	Failure to close focus
10,14	Waiting for focus closure (FOK=H)	Failure to close focus
15, 16, 17	Focus closed, Tracking open	Focus disrupted
18	During focus AGC Subcode waiting	Focus disrupted
19	During tracking AGC	Disrupted focus
20	Waiting for MIRR, LOCK or subcode read Carriage closed, SPINDLE=ADAPTIVE	Focus disrupted, MIRR NG, Failure to lock, Failed to read subcode

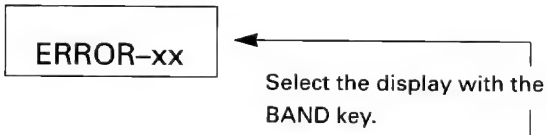
(5) Example of Display.

·SET UP in progress
8 digits display LCD

·Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

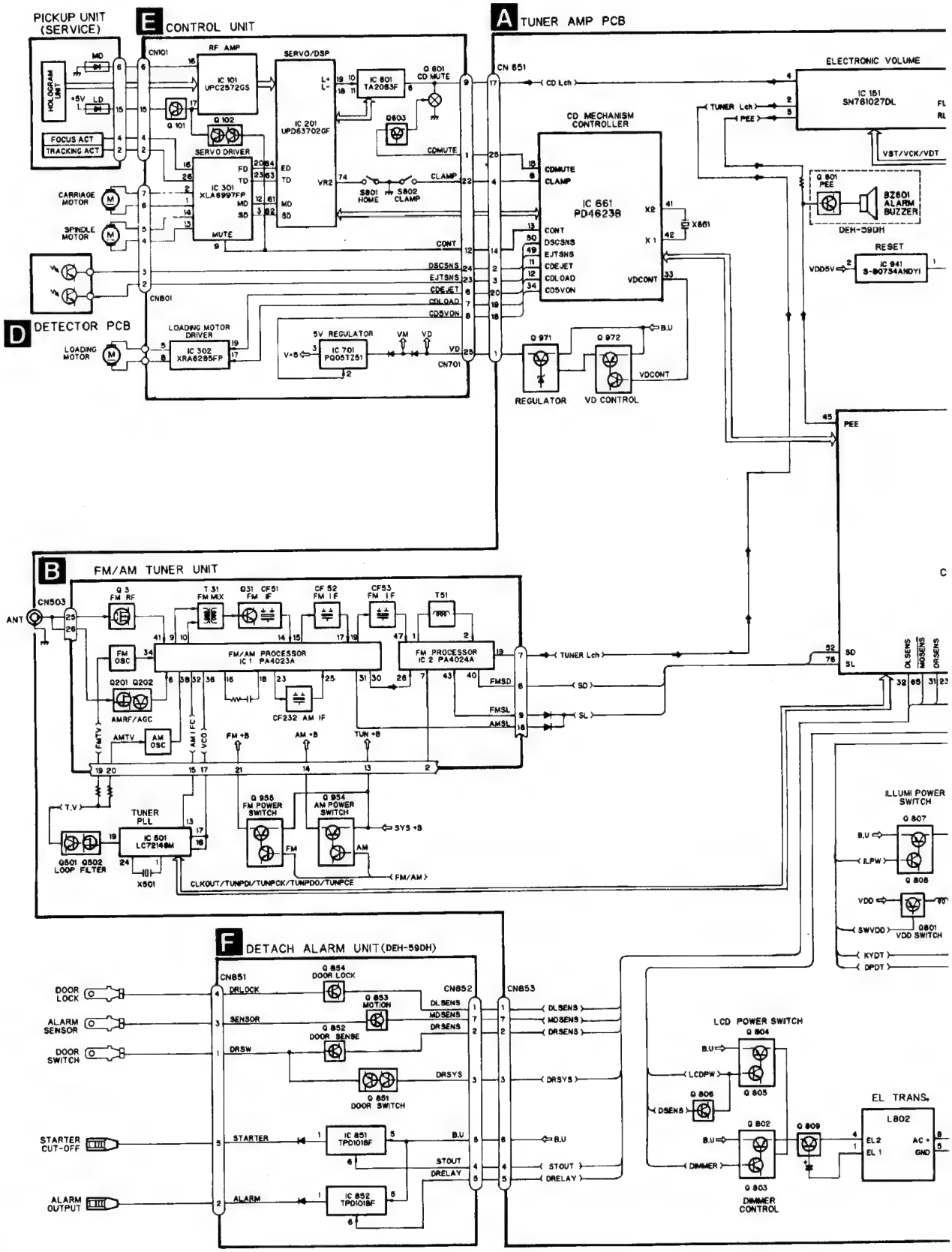
·Protection/Error upon occurrence(8 digits display LCD)

(a) Error number indicated



(b) Track number and absolute time indicated

7.3 BLOCK DIAGRAM



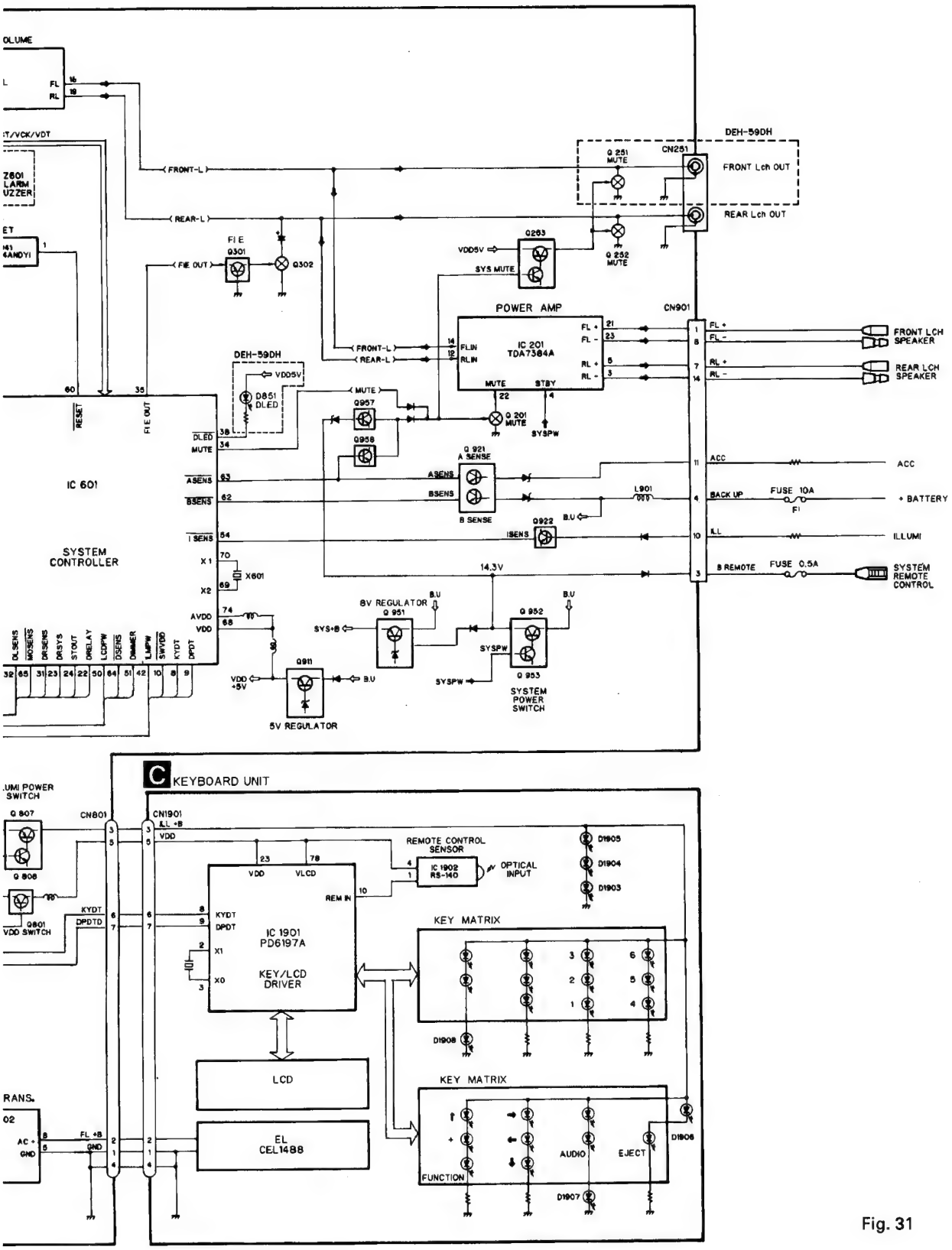

DEH-59DH
CN251
Q 251 MUTE
FRONT Lch OUT
REAR Lch OUT
Q 252 MUTE
Q253
VDD5V
SYS MUTE
FRONT-L
REAR-L
FIE
Q301
Q302
FIE OUT
POWER AMP
IC 201 TDA7384A
FLIN
RLIN
MUTE
STBY
CN901
FL +
FL -
RL +
RL -
FRONT LCH SPEAKER
REAR LCH SPEAKER
Q 201 MUTE
SYSPW
IC 601
SYSTEM CONTROLLER
RESET
FIE OUT
DLED
D851 DLED
Q957
Q958
Q 921 A SENSE
ASENS
BSENS
B SENSE
ISENS
Q922
L901
ACC
BACK UP
FUSE 10A
F1
+ BATTERY
ILL
ILLUMI
B REMOTE
FUSE 0.5A
SYSTEM REMOTE CONTROL
X601
14.3V
8V REGULATOR
Q 951
Q 952
Q 953
SYSTEM POWER SWITCH
Q911
5V REGULATOR
VDD +5V
SYS+B
B.U
C KEYBOARD UNIT
ILLUMI POWER SWITCH
Q 807
Q 808
Q801 VDD SWITCH
CN801
CN1901
REMOTE CONTROL SENSOR
IC 1902 RS-140
OPTICAL INPUT
D1905
D1904
D1903
IC 1901 PD6197A
KEY/LCD DRIVER
KYDT
DPDT
REM IN
KEY MATRIX
D1908
LCD
EL CEL1488
AUDIO
EJECT
FUNCTION
D1906
D1907

Fig. 31

8. OPERATIONS AND SPECIFICATIONS

Key Finder

■ Head Unit

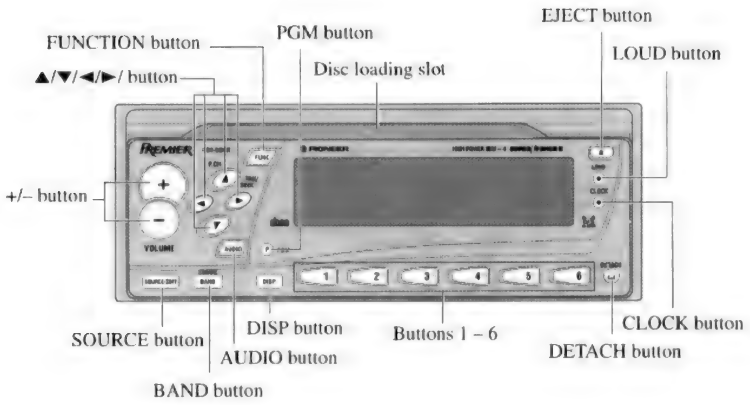


Fig. 32

■ Remote Controller

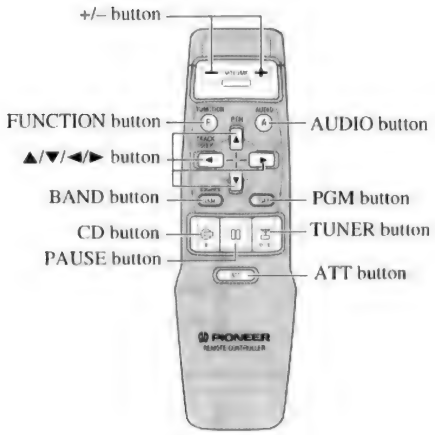
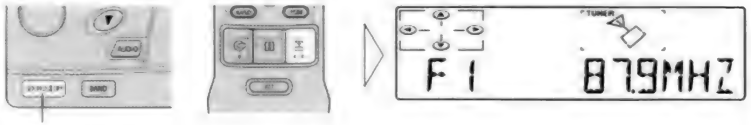


Fig. 33

Tuner Operation

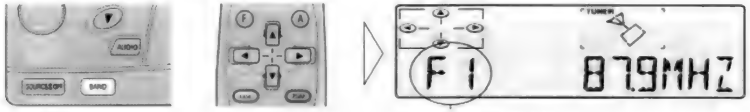
Basic Operation of Tuner

1. **Select Tuner.**



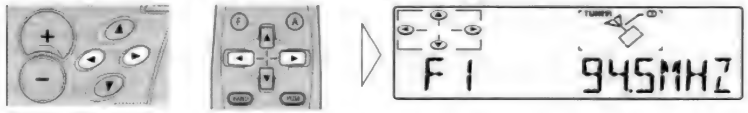
Each press
changes the Source ...

2. **Select the desired band.**



F1 → F2 → F3 → AM

3. **Tune the receiver to a higher or lower frequency.**



This product's tuner lets you select the tuning by changing the length of the time you press the button.

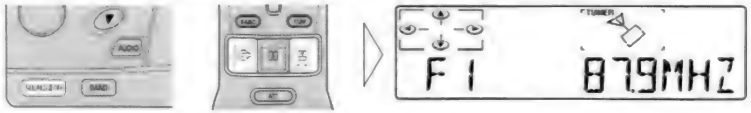
Manual Tuning (step by step)	0.3 seconds or less
Seek Tuning (automatically)	0.3 - 2 seconds
Manual Tuning (continuously)	2 seconds or more

Note:
- "◯" indicator lights when a stereo station is selected.

Basic Operation

Switching Power ON/OFF

- **Select the desired source (such as the tuner).**



■ **Head Unit:**

Each press of the SOURCE button selects the desired source in the following order:
Built-in CD player → Tuner

To switch the sources OFF, hold down the SOURCE button for 1 second or more.

■ **Remote Controller:**

Each press of the CD button selects the desired source in the following order:
Built-in CD player → Sources OFF

Each press of the TUNER button selects the desired source in the following order:
Tuner → Sources OFF

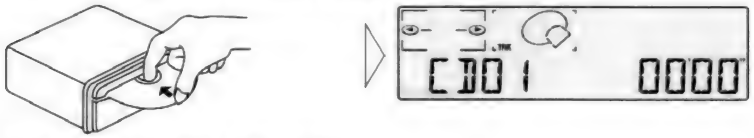
Note:
- The sound source will not change if no disc is set in this unit.

Using the Built-in CD Player

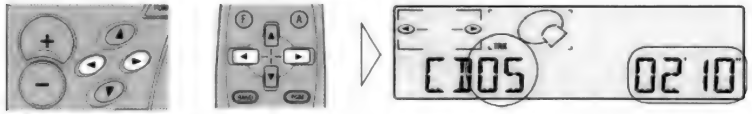
Basic Operation of Built-in CD Player

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.

1. Insert the disc with the recorded (iridescent) surface down.



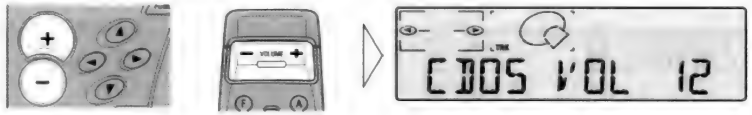
2. Select the desired track (and phrase).



This product's built-in CD player lets you select the track search function or fast-forward/reverse function by changing the length of the time you press the button.

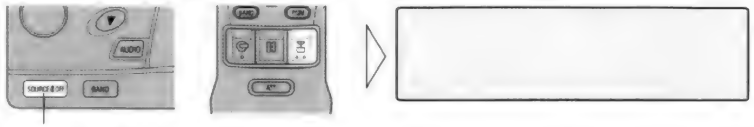
Track Search	0.5 seconds or less
Fast-forward/Reverse	Continue pressing

3. Raise or lower the volume.



4. Raise or lower the volume.

5. Turn the source OFF.

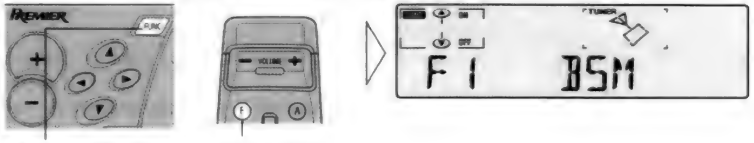


Hold for 1 second

Entering the Function Menu

In this menu you can select tuner functions.

- **Select the desired mode in Function Menu.**



Each press changes the Mode ...

Each press changes the Mode ...

Each press of the FUNCTION button selects the mode in the following order:
BSM → LOC

To cancel the Function Menu, press the BAND button.

Note:

- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

Built-in CD Player Troubleshooting

Error Message

When problems occur with CD playback, an error message appears on the display. Refer to the table below to identify the problem, then take the suggested corrective action. If the error persists, contact your dealer or your nearest PIONEER Service Center.

Message	Possible cause	Recommended action
ERROR- 11, 12,17, 30	Dirty disc.	Clean the disc.
ERROR- 11, 12, 17, 30	Scratched disc.	Replace the disc.
ERROR- 14	Unrecorded CD.	Check the disc.
ERROR- 10, 11,12, 14 17, 30, A0	Electrical or mechanical or problem.	Turn the ignition ON and OFF switch to a different source, then back to the CD player.

4. Remove the disc.

Note:

- The CD function can be turned ON/OFF with the disc remaining in this product. (See Page 75.)
- Discs left partially inserted after ejection may incur damage or fall out.
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down, push the EJECT button and check the disc for damage before reinserting it.
- If a CD is inserted with the recorded side up, it will be ejected automatically after a few moments.
- If the built-in CD player cannot operate properly, an error message (such as "ERROR-14") appears on the display. Refer to "Built-in CD Player Troubleshooting".

Pause

- **Stops playback temporarily or restarts the system.**

Note:

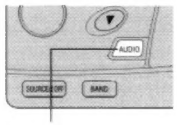
- You can also switch the Pause Function ON/OFF in the Function Menu.

Audio Adjustment

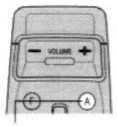
Entering the Audio Menu

In this menu, you can adjust sound quality such as fader/balance and bass/treble settings.

- **Select the mode you want to adjust in Audio Menu.**



Each press changes the Mode ...



Each press changes the Mode ...

Each press of the AUDIO button selects the mode in the following order:
FAD → BAS → TRE → LOUD → FIE

To cancel the Audo Menu, press the BAND button.

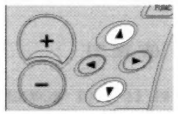
Note:

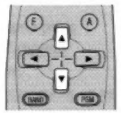
- After entering the Audio Menu, if you do not perform an operation within 30 seconds, the Audio Menu is automatically canceled.

Balance Adjustment

This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

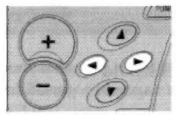
1. **Select the Fader/Balance mode (FAD) in the Audio Menu.**
2. **Shift the balance progressively to the front or rear speakers.**

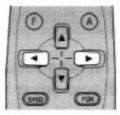




"FAD F15" – "FAD R15" is displayed as it moves from front to rear.

3. **Shift the balance to the left or right speaker, respectively.**





"BAL L9" – "BAL R9" is displayed as it moves from left to right.

To cancel the Audio Menu, press the BAND button.

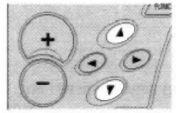
Note:

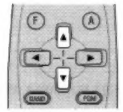
- "FAD 0" is the proper setting when 2 speakers are in use.

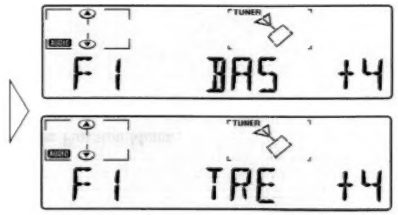
Bass/Treble Adjustment

This product is equipped with two tone adjustment modes, the Bass (BAS) and Treble (TRE) modes.

1. **Select bass mode (BAS) or treble mode (TRE) in the Audio Menu.**
2. **Increase or decrease the intensity of the bass or treble, whichever is selected.**







The display shows "+6" – "–6".

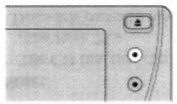
3. **Repeat steps 1 – 2 above for the other Bass or Treble adjustment.**

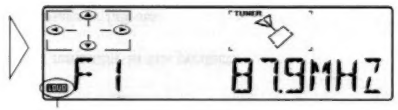
To cancel the Audio Menu, press the BAND button.

Loudness Adjustment

The Loudness function compensates for deficiencies in the low and high sound ranges at low volume.

- **Switch the Loudness function ON.**



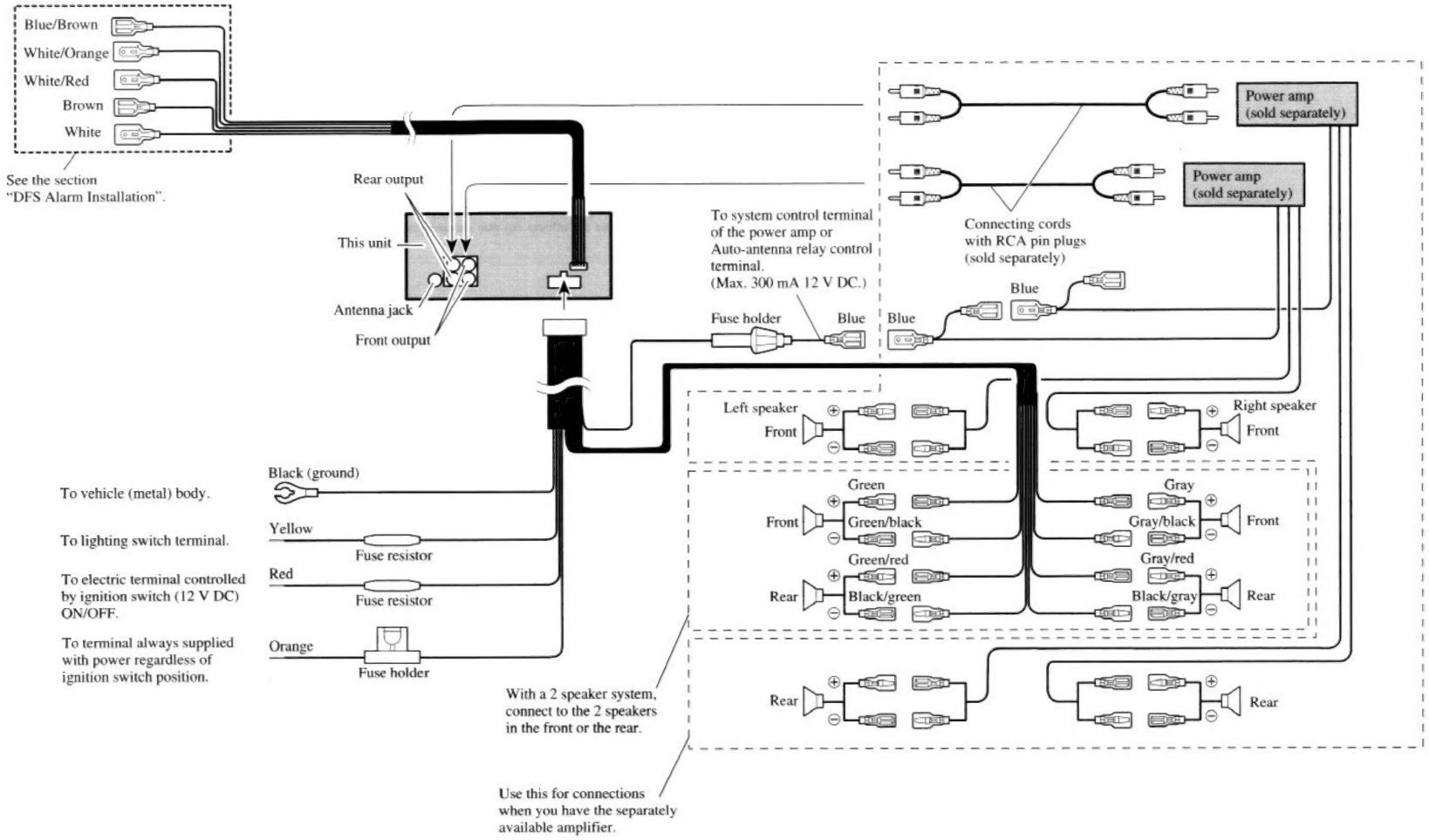


"LOUD"

To cancel the Loudness function, repeat the preceding operation.

Note:

- You can also switch the Loudness function ON/OFF in the Audio Menu.


Blue/Brown
White/Orange
White/Red
Brown
White
See the section "DFS Alarm Installation".
Rear output
This unit
Antenna jack
Front output
To system control terminal of the power amp or Auto-antenna relay control terminal. (Max. 300 mA 12 V DC.)
Fuse holder
Blue
Power amp (sold separately)
Power amp (sold separately)
Connecting cords with RCA pin plugs (sold separately)
Blue
Blue
Left speaker
Front
Right speaker
Front
Green
Front
Green/black
Green/red
Rear
Black/green
Gray
Gray/black
Front
Gray/red
Black/gray
Rear
Rear
Rear
Black (ground)
To vehicle (metal) body.
Yellow
To lighting switch terminal.
Fuse resistor
Red
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Fuse resistor
Orange
To terminal always supplied with power regardless of ignition switch position.
Fuse holder
With a 2 speaker system, connect to the 2 speakers in the front or the rear.
Use this for connections when you have the separately available amplifier.

● DEH-45DH

Specifications

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 8.0 A
Dimensions
(mounting size) .... 198 (W) × 78 (H) × 135 (D) mm
[7-3/4 (W) × 3-1/8 (H) × 5-3/8 (D) in.]
(nose) ..... 190 (W) × 62 (H) × 21 (D) mm
[7-1/2 (W) × 2-1/2 (H) × 7/8 (D) in.]
Weight ..... 2.1 kg (4.6 lbs)

Amplifier

Continuous power output is 17 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 35 W × 4
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout output level/output impedance ..... 500 mV/1 kΩ
Tone controls
(Bass) ..... ±12 dB (100 Hz)
(Treble) ..... ±12 dB (10 kHz)
Loudness contour .... +10 dB (100 Hz), +6.5 dB (10 kHz)
(volume: –30 dB)

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantizatin bits: 16; linear
Frequency characteristics ..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IHF-A network)
Dynamic range ..... 90 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.9 – 107.9 MHz
Usable sensitivity ..... 11 dBf
(1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA)
Three-signal intermodulation
(desired signal level) ..... 50 dBf
(two undesired signal level: 110 dBf)

AM tuner

Frequency range ..... 530 – 1,710 kHz
Usable sensitivity ..... 18 μV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.

● DEH-59DH

Specifications

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 8.0 A
Dimensions
(mounting size) .... 198 (W) × 78 (H) × 135 (D) mm
[7-3/4 (W) × 3-1/8 (H) × 5-3/8 (D) in.]
(nose) ..... 190 (W) × 62 (H) × 21 (D) mm
[7-1/2 (W) × 2-1/2 (H) × 7/8 (D) in.]
Weight ..... 2.1 kg (4.6 lbs)

Amplifier

Continuous power output is 17 W per channel min. into 4 ohms, both channels driven 50 to 15.000 Hz with no more than 5% THD.
Maximum power output ..... 35 W × 4
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout output level/output impedance ..... 500 mV/1 kΩ
Tone controls
(Bass) ..... ±12 dB (100 Hz)
(Treble) ..... ±12 dB (10 kHz)
Loudness contour .... +10 dB (100 Hz), +6.5 dB (10 kHz)
(volume: –30 dB)

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantizatin bits: 16; linear
Frequency characteristics ..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IHF-A network)
Dynamic range ..... 90 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.9 – 107.9 MHz
Usable sensitivity ..... 11 dBf
(1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA)
Three-signal intermodulation
(desired signal level) ..... 50 dBf
(two undesired signal level: 110 dBf)

AM tuner

Frequency range ..... 530 – 1,710 kHz
Usable sensitivity ..... 18 μV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.